Texas Law Review

SYMPOSIUM:
STEPS TOWARD EVIDENCE-BASED IP

John R. Allison
Robert G. Bone
Oren Bracha
Christopher Buccafusco
Zachary C. Burns
Christopher A. Cotropia
Shari Seidman Diamond
Christopher R. Drahozal
David J. Franklyn
Jeanne C. Fromer
James Gibson
John M. Golden
David A. Hyman
Mark A. Lemley
Ronald J. Mann
Robert P. Merges
Erin O'Hara O'Connor
Dotan Oliar
Nathaniel Pattison
K. Ross Powell
Pamela Samuelson
David L. Schwartz
Christopher Jon Sprigman
Talha Syed

JUNE 2014 VOL. 92 NO. 7 PAGES 1757 TO 2248

Texas Law Review (ISSN 0040-4411) is published seven times a year—November, December, February, March, April, May, and June. The annual subscription price is $47.00 except as follows: Texas residents pay $50.88, and foreign subscribers pay $55.00. All publication rights are owned by the Texas Law Review Association. *Texas Law Review* is published under license by The University of Texas at Austin School of Law, P.O. Box 8670, Austin, Texas 78713. Periodicals Postage Paid at Austin, Texas, and at additional mailing offices.

POSTMASTER: Send address changes to The University of Texas at Austin School of Law, P.O. Box 8670, Austin, Texas 78713.

Complete sets and single issues are available from WILLIAM S. HEIN & CO., INC., 1285 MAIN ST., BUFFALO, NY 14209-1987. Phone: 1-800-828-7571.

Single issues in the current volume may be purchased from the *Texas Law Review* Publications Office for $10.00 per copy plus shipping. Texas residents, please add applicable sales tax.

The *Texas Law Review* is pleased to consider unsolicited manuscripts for publication but regrets that it cannot return them. Please submit a single-spaced manuscript, printed one side only, with footnotes rather than endnotes. Citations should conform with the *The Greenbook: Texas Rules of Form* (12th ed. 2010) and *The Bluebook: A Uniform System of Citation* (19th ed. 2010). Except when content suggests otherwise, the *Texas Law Review* follows the guidelines set forth in the *Texas Law Review Manual on Usage & Style* (12th ed. 2011), *The Chicago Manual of Style* (16th ed. 2010), and Bryan A. Garner, *A Dictionary of Modern Legal Usage* (2d ed. 1995).

Editorial Offices: *Texas Law Review*
727 East Dean Keeton Street, Austin, Texas 78705
(512) 232-1280 Fax (512) 471-3282
tlr@law.utexas.edu
http://www.texaslawreview.com

THE UNIVERSITY OF TEXAS SCHOOL OF LAW

ADMINISTRATIVE OFFICERS

WARD FARNSWORTH, B.A., J.D.; *Dean, John Jeffers Research Chair in Law.*
JOHN B. BECKWORTH, B.A., J.D.; *Associate Dean for Administration and Strategic Planning, Lecturer*
ROBERT M. CHESNEY, B.S., J.D.; *Associate Dean for Academic Affairs, Charles I. Francis Professor in Law.*
WILLIAM E. FORBATH, A.B., B.A., Ph.D., J.D.; *Associate Dean for Research, Lloyd M. Bentsen Chair in Law.*
EDEN E. HARRINGTON, B.A., J.D.; *Associate Dean for Experiential Education, Director of William Wayne Justice Center. for Public Interest Law, Clinical Professor.*
MARIA M. ARRELLAGA, B.S.; *Assistant Dean for Communications.*
ELIZABETH T. BANGS, A.B., J.D.; *Assistant Dean for Student Affairs.*
KIMBERLY L. BIAR, B.B.A.; *Assistant Dean for Financial Affairs, Certified Public Accountant.*
MICHAEL G. HARVEY, B.A., B.S.; *Assistant Dean for Technology.*
MONICA K. INGRAM, B.A., J.D.; *Assistant Dean for Admissions and Financial Aid.*
TIMOTHY A. KUBATZKY, B.A.; *Executive Director of Development.*
DAVID A. MONTOYA, B.A., J.D.; *Assistant Dean for Career Services.*
GREGORY J. SMITH, B.A., J.D.; *Assistant Dean for Continuing Legal Education.*

FACULTY EMERITI

HANS W. BAADE, A.B., J.D., LL.B., LL.M.; *Hugh Lamar Stone Chair Emeritus in Civil Law.*
RICHARD V. BARNDT, B.S.L., LL.B.; *Professor Emeritus.*
WILLIAM W. GIBSON, JR., B.A., LL.B.; *Sylvan Lang Professor Emeritus in Law of Trusts.*
ROBERT W. HAMILTON, A.B., J.D.; *Minerva House Drysdale Regents Chair Emeritus.*
DOUGLAS LAYCOCK, B.A., J.D.; *Alice McKean Young Regents Chair Emeritus.*
J.L. LEBOWITZ, A.B., J.D., LL.M.; *Joseph C. Hutcheson Professor Emeritus.*
JOHN T. RATLIFF, JR., B.A., LL.B.; *Ben Gardner Sewell Professor Emeritus in Civil Trial Advocacy.*
JAMES M. TREECE, B.A., J.D., M.A.; *Charles I. Francis Professor Emeritus in Law.*

PROFESSORS

JEFFREY B. ABRAMSON, B.A., J.D., Ph.D.; *Professor of Government and Law.*
DAVID E. ADELMAN, B.A., Ph.D., J.D.; *Harry Reasoner Regents Chair in Law.*
DAVID A. ANDERSON, A.B., J.D.; *Fred and Emily Marshall Wulff Centennial Chair in Law.*
MARILYN ARMOUR, B.A., M.S.W., Ph.D.; *Associate Professor.*
MARK L. ASCHER, B.A., M.A., J.D., LL.M.; *Joseph D. Jamail Centennial Chair in Law.*
RONEN AVRAHAM, M.B.A., LL.B., LL.M., S.J.D.; *Thomas Shelton Maxey Professor in Law.*
LYNN A. BAKER, B.A., B.A., J.D.; *Frederick M. Baron Chair in Law, Co-Director of Center on Lawyers, Civil Justice, and the Media.*
MITCHELL N. BERMAN, A.B., M.A., J.D.; *Richard Dale Endowed Chair in Law, Professor of Philosophy, Co-Director of Law and Philosophy Program.*
BARBARA A. BINTLIFF, M.A., J.D.; *Joseph C. Hutcheson Professor in Law, Director of Tarlton Law Library and the Jamail Center for Legal Research.*
LYNN E. BLAIS, A.B., J.D.; *Leroy G. Denman, Jr. Regents Professor in Real Property Law.*
ROBERT G. BONE, B.A., J.D.; *G. Rollie White Teaching Excellence Chair in Law.*
OREN BRACHA, LL.B., S.J.D.; *Howrey LLP and Arnold, White & Durkee Centennial Professor.*
DANIEL M. BRINKS, A.B., J.D., Ph.D.; *Associate Professor, Co-Director of Bernard and Audre Rapoport Center for Human Rights and Justice.*
J. BUDZISZEWSKI, B.A., M.A., Ph.D.; *Professor.*
NORMA V. CANTU, B.A., J.D.; *Professor of Education and Law .*
LOFTUS C. CARSON, II, B.S., M. Pub. Affrs., M.B.A., J.D.; *Ronald D. Krist Professor.*
MICHAEL J. CHURGIN, A.B., J.D.; *Raybourne Thompson Centennial Professor.*
JANE M. COHEN, B.A., J.D.; *Edward Clark Centennial Professor.*
FRANK B. CROSS, B.A., J.D.; *Herbert D. Kelleher Centennial Professor of Business Law, Professor of Law.*
WILLIAM H. CUNNINGHAM, B.A., M.B.A., Ph.D.; *Professor.*
JENS C. DAMMANN, J.D., LL.M., Dr. Jur., J.S.D.; *William Stamps Farish Professor in Law.*
JOHN DEIGH, B.A., M.A., Ph.D.; *Professor of Philosophy and Law.*
MECHELE DICKERSON, B.A., J.D.; *Arthur L. Moller Chair in Bankruptcy Law and Practice.*
GEORGE E. DIX, B.A., J.D.; *George R. Killam, Jr. Chair of Criminal Law.*
JUSTIN DRIVER, B.A., M.A., M.A., J.D.; *Professor.*
JOHN S. DZIENKOWSKI, B.B.A., J.D.; *Dean John F. Sutton, Jr. Chair in Lawyering and the Legal Process.*
ZACHARY S. ELKINS, B.A., M.A., Ph.D.; *Associate Professor.*
KAREN L. ENGLE, B.A., J.D.; *Minerva House Drysdale Regents Chair in Law, Co-Director of Bernard and Audre Rapoport Center for Human Rights and Justice.*
KENNETH FLAMM, A.B., Ph.D.; *Professor.*
JULIUS G. GETMAN, B.A., LL.B., LL.M.; *Earl E. Sheffield Regents Chair.*
CHARLES E. GHOLZ, B.S., B.S., Ph.D.; *Associate Professor.*
JOHN M. GOLDEN, A.B., J.D., Ph.D.; *Loomer Family Professor in Law.*
STEVEN GOODE, B.A., J.D.; *W. James Kronzer Chair in Trial and Appellate Advocacy, University Distinguished Teaching Professor.*
LINO A. GRAGLIA, B.A., LL.B.; *A. W. Walker Centennial Chair in Law.*
BENJAMIN G. GREGG, B.A., Ph.D., M.A., Ph.D.; *Associate Professor.*
CHARLES G. GROAT, B.A., M.S., Ph.D.; *Professor.*
PATRICIA I. HANSEN, A.B., M.P.A., J.D.; *J. Waddy Bullion Professor.*
HENRY T. C. HU, B.S., M.A., J.D.; *Allan Shivers Chair in the Law of Banking and Finance.*

BOBBY R. INMAN, B.A.; *Professor.*
DEREK P. JINKS, B.A., M.A., J.D.; *The Marrs Mcl.ean Professor in Law.*
STANLEY M. JOHANSON, B.S., LL.B., LL.M.; *James A. Elkins Centennial Chair in Law, University Distinguished Teaching Professor.*
CALVIN H. JOHNSON, B.A., J.D.; *Andrews & Kurth Centennial Professor.*
SUSAN R. KLEIN, B.A., J.D.; *Alice McKean Young Regents Chair in Law.*
JENNIFER E. LAURIN, B.A., J.D.; Professor.
SANFORD V. LEVINSON, A.B., Ph.D., J.D.; *W. St. John Garwood and W. St. John Garwood, Jr. Centennial Chair in Law, Professor of Government.*
ANGELA K. LITTWIN, B.A., J.D.; *Professor.*
VIJAY MAHAJAN, M.S.Ch.E., Ph.D.; *Professor.*
BASIL S. MARKESINIS, LL.B., Ph.D., D.C.L., LL.D.; *Jamail Regents Chair in Law.*
INGA MARKOVITS, LL.M.; *"The Friends of Joe Jamail" Regents Chair.*
RICHARD S. MARKOVITS, B.A., LL.B., Ph.D.; *John B. Connally Chair.*
THOMAS O. MCGARITY, B.A., J.D.; *Joe R. and Teresa Lozano Long Endowed Chair in Administrative Law.*
STEVEN A. MOORE, B.A., Ph.D.; *Professor.*
LINDA S. MULLENIX, B.A., M.Phil., J.D., Ph.D.; *Morris and Rita Atlas Chair in Advocacy.*
STEVEN P. NICHOLS, B.S.M.E., M.S.M.E., J.D., Ph.D.; *Professor.*
ROBERT J. PERONI, B.S.C., J.D., LL.M.; *The Fondren Foundation Centennial Chair for Faculty Excellence.*
H. W. PERRY, JR., B.A., M.A., Ph.D.; *Associate Professor of Government and Law.*
LUCAS A. POWE, JR., B.A., J.D.; *Anne Green Regents Chair in Law, Professor of Government.*
WILLIAM C. POWERS, JR., B.A., J.D.; *President of The University of Texas at Austin, Hines H. Baker and Thelma Kelley Baker Chair in Law, University Distinguished Teaching Professor.*
DAVID M. RABBAN, B.A., J.D.; *Dahr Jamail, Randall Hage Jamail and Robert Lee Jamail Regents Chair, University Distinguished Teaching Professor.*
ALAN S. RAU, B.A., LL.B.; *Mark G. and Judy G. Yudof Chair in Law.*
DAVID W. ROBERTSON, B.A., LL.B., LL.M., J.S.D.; *W. Page Keeton Chair in Tort Law, University Distinguished Teaching Professor.*
JOHN A. ROBERTSON, A.B., J.D.; *Vinson & Elkins Chair.*
MARY ROSE, A.B., M.A., Ph.D.; *Associate Professor.*
WILLIAM M. SAGE, A.B., M.D., J.D.; *Vice Provost for Health Affairs of The University of Texas at Austin, James R. Dougherty Chair for Faculty Excellence.*
LAWRENCE G. SAGER, B.A., LL.B.; *Alice Jane Drysdale Sheffield Regents Chair.*
JOHN J. SAMPSON, B.B.A., LL.B.; *William Benjamin Wynne Professor.*
CHARLES M. SILVER, B.A., M.A., J.D.; *Roy W. and Eugenia C. McDonald Endowed Chair in Civil Procedure, Professor of Government, Co-Director of Center on Lawyers, Civil Justice and the Media.*
ERNEST E. SMITH, B.A., LL.B.; *Rex G. Baker Centennial Chair in Natural Resources Law.*
DAVID B. SPENCE, B.A., J.D., M.A., Ph.D.; *Professor of Business, Government and Society, and Law.*
JAMES C. SPINDLER, B.A., J.D., M.A., Ph.D.; *Sylvan Lang Professor of Law.*
JANE STAPLETON, B.S., Ph.D., LL.B., D.C.L., D. Phil.; *Ernest E. Smith Professor.*
JORDAN M. STEIKER, B.A., J.D.; *Judge Robert M. Parker Endowed Chair in Law, Co-Director of Capital Punishment Center.*
MICHAEL F. STURLEY, B.A., J.D.; *Fannie Coplin Regents Chair.*
GERALD TORRES, A.B., J.D., LL.M.; *Bryant Smith Chair in Law.*
JEFFREY K. TULIS, B.A., M.A., Ph.D.; *Associate Professor.*
GREGORY J. VINCENT, B.A., J.D., Ed.D.; *Professor, Vice President for Diversity and Community Engagement of The University of Texas at Austin.*
SRIRAM VISHWANATH, B.S., M.S., Ph.D.; *Associate Professor.*
WENDY E. WAGNER, B.A., M.E.S., J.D.; *Joe A. Worsham Centennial Professor.*
LOUISE WEINBERG, B.A., LL.M, J.D.; *William B. Bates Chair for the Administration of Justice.*
OLIN G. WELLBORN, A.B., J.D.; *William C. Liedtke, Sr. Professor of Law.*
JAY L.WESTBROOK, B.A., J.D.; *Benno C. Schmidt Chair of Business Law.*
ABRAHAM L. WICKELGREN, A.B., J.D., Ph.D.; *Bernard J. Ward Centennial Professor.*
SEAN H. WILLIAMS, B.A., J.D.; *Professor.*
ZIPPORAH B. WISEMAN, B.A., M.A., LL.B.; *Thos. H. Law Centennial Professor.*
PATRICK WOOLLEY, A.B., J.D.; *Beck, Redden & Secrest Professor in Law.*

ASSISTANT PROFESSORS

JOSEPH R. FISHKIN, B.A., M. Phil., J.D., D. Phil.
CARY C. FRANKLIN, B.A., M.St., D. Phil., J.D.
MIRA GANOR, B.A., M.B.A., LL.B., LL.M., J.S.D.
JAMES W. MCCLELLAND, B.S., Ph.D.
SUSAN C. MORSE, A.B., J.D.
TIMOTHY D. WERNER, B.A., M.A., Ph.D.

SENIOR LECTURERS, WRITING LECTURERS, AND CLINICAL PROFESSORS

ALEXANDRA W. ALBRIGHT, B.A., J.D.; *Senior Lecturer.*
WILLIAM P. ALLISON, B.A., J.D.; *Clinical Professor, Director of Criminal Defense Clinic.*
WILLIAM H. BEARDALL, JR., B.A., J.D.; *Adjunct Professor, Director of Transnational Worker Rights Clinic.*
NATALIA V. BLINKOVA, B.A., M.A., J.D.; *Lecturer.*
PHILIP C. BOBBITT, A.B., J.D., Ph.D.; *Distinguished Senior Lecturer.*
HUGH L. BRADY, B.A., J.D.; *Adjunct Professor, Director of Legislative Lawyering Clinic.*
KAMELA S. BRIDGES, B.A., B.J., J.D.; *Lecturer.*
CYNTHIA L. BRYANT, B.A., J.D.; *Clinical Professor, Director of Mediation Clinic.*
JOHN C. BUTLER, B.B.A., Ph.D.; *Clinical Associate Professor.*
MARY R. CROUTER, A.B., J.D.; *Lecturer, Assistant Director of William Wayne Justice Center for Public Interest Law.*
MICHELE Y. DEITCH, B.A., M.S., J.D.; *Senior Lecturer.*
TIFFANY J. DOWLING, B.A., J.D.; *Clinical Instructor, Director of Actual Innocence Clinic.*

LORI K. DUKE, B.A., J.D.; *Clinical Professor.*
ARIEL E. DULITZKY, J.D., LL.M.; *Clinical Professor, Director of Human Rights Clinic.*
ELANA S. EINHORN, B.A., J.D.; *Lecturer.*
TINA V. FERNANDEZ, A.B., J.D.; *Lecturer, Director of Pro Bono Program.*
LYNDA E. FROST, B.A., M.Ed., J.D., Ph.D.; *Clinical Associate Professor.*

AHMED GHAPPOUR, B.S., J.D.; *Clinical Instructor.*
DENISE L. GILMAN, B.A., J.D.; *Clinical Professor, Co-Director of Immigration Clinic.*
KELLY L. HARAGAN, B.A., J.D.; *Lecturer, Director of Environmental Law Clinic.*
BARBARA HINES, B.A., J.D.; *Clinical Professor, Co-Director of Immigration Clinic.*
HARRISON KELLER, B.A., M.A., Ph.D.; *Senior Lecturer, Vice Provost for Higher Education Policy at the University of Texas at Austin.*
BRIAN R. LENDECKY, B.B.A., M.P.A.; *Senior Lecturer.*

JEANA A. LUNGWITZ, B.A., J.D.; *Clinical Professor, Director of Domestic Violence Clinic.*

TRACY W. MCCORMACK, B.A., J.D.; *Senior Lecturer, Director of Advocacy Programs.*
F. SCOTT MCCOWN, B.S., J.D.; *Clinical Professor, Director of Children's Rights Clinic.*
ROBIN B. MEYER, B.A., M.A., J.D.; *Lecturer.*
RANJANA NATARAJAN, B.A., J.D.; *Clinical Professor, Director of Civil Rights Clinic.*
SEAN J. PETRIE, B.A., J.D.; *Lecturer.*
RACHAEL RAWLINS, B.A., M.R.P., J.D.; *Senior Lecturer.*

WAYNE SCHIESS, B.A., J.D.; *Senior Lecturer, Director of David J. Beck Center for Legal Research, Writing and Appellate Advocacy.*
RAOUL D. SCHONEMANN, B.A., LL.M., J.D.; *Clinical Professor.*
STACY ROGERS SHARP, B.S., J.D.; *Lecturer.*

PAMELA J. SIGMAN, B.A., J.D.; *Adjunct Professor, Director of Juvenile Justice Clinic.*
DAVID S. SOKOLOW, B.A., M.A., J.D., M.B.A.; *Distinguished Senior Lecturer, Director of Student Life.*
LESLIE L. STRAUCH, B.A., J.D.; *Clinical Professor.*

MELINDA E. TAYLOR, B.A., J.D.; *Senior Lecturer, Executive Director of Center for Global Energy, International Arbitration and Environmental Law.*
HEATHER K. WAY, B.A., B.J., J.D.; *Lecturer, Director of Entrepreneurship and Community Development Clinic.*
ELIZABETH M. YOUNGDALE, B.A., M.L.I.S., J.D.; *Lecturer.*

ADJUNCT PROFESSORS AND OTHER LECTURERS

ELIZABETH AEBERSOLD, B.A., M.S.
WILLIAM R. ALLENSWORTH, B.A., J.D.
ANDREW W. AUSTIN, B.A., M.Phil., J.D.
MARJORIE I. BACHMAN, B.S., J.D.
CRAIG D. BALL, B.A., J.D.
SHARON C. BAXTER, B.S., J.D.
KARL O. BAYER, B.A., M.S., J.D.
JERRY A. BELL, B.A., J.D.
ALLISON H. BENESCH, B.A., M.S.W., J.D.
CRAIG R. BENNETT, B.S., J.D.
JAMES B. BENNETT, B.B.A., J.D.
MURFF F. BLEDSOE, B.A., J.D.
WILLIAM P. BOWERS, B.B.A., J.D., LL.M.
STACY L. BRAININ, B.A., J.D.
ANTHONY W. BROWN, B.A., J.D.
JAMES E. BROWN, B.S., LL.B., J.D.
JEREMY M. BROWN, B.A., J.D.
TOMMY L. BROYLES, B.A., J.D.
PAUL J. BURKA, B.A., LL.B.
W. AMON BURTON, JR., B.A., M.A., LL.B.
ERIN G. BUSBY, B.A., J.D.
AGNES E. CASAS, B.A., J.D.
RUBEN V. CASTANEDA, B.A., J.D.
EDWARD A. CAVAZOS, B.A., J.D.
LINDA BRAY CHANOW, B.A., J.D.
JEFF CIVINS, A.B., M.S., J.D.
ELIZABETH COHEN, B.A., M.S.W., J.D.
JAMES W. COLLINS, B.S., J.D.
KEVIN D. COLLINS, B.A., J.D.
DANLEY K. CORNYN, B.A., J.D.
KASIA SOLON CRISTOBAL, B.A., M.S., J.D.
PATRICIA J. CUMMINGS, B.A., J.D.
KEITH B. DAVIS, B.S., J.D.
SCOTT D. DEATHERAGE, B.A., J.D.
DICK DEGUERIN, B.A., LL.B.
ADAM R. DELL, B.A., J.D.
RICHARD D. DEUTSCH, B.A., B.A., J.D.
STEVEN K. DEWOLF, B.A., J.D, LL.M.
REBECCA H. DIFFEN, B.A., J.D.
DENNIS B. DRAPKIN, A.B., B.E., LL.M., J.D.
CASEY D. DUNCAN, B.A., M.L.I.S., J.D.
PHILIP DURST, B.A., M.A., J.D.
JAY D. ELLWANGER, B.A., J.D.
LISA R. ESKOW, A.B., J.D.
EDWARD Z. FAIR, B.A., M.S.W., J.D.
SEAN P. FLAMMER, B.A., J.D.
JOHN C. FLEMING, B.A., J.D.
KYLE K. FOX, B.A., J.D.
DAVID C. FREDERICK, B.A., Ph.D., J.D.
GREGORY D. FREED, B.A., J.D.
FRED J. FUCHS, B.A., J.D.
RYAN M. GARCIA, B.G.S., J.D.
GRETTA G. GARDNER, B.A., J.D.
MICHAEL S. GOLDBERG, B.A., J.D.
MICHAEL J. GOLDEN, A.B., J.D.
DAVID M. GONZALES, B.A., J.D.
DAVID HALPERN, B.A., J.D.
ELIZABETH HALUSKA-RAUSCH, B.A., M.A., M.S., Ph.D.
CLINT A. HARBOUR, B.A., B.A., J.D., LL.M.
ROBERT L. HARGETT, B.B.A., J.D.
MARY L. HARRELL, B.S., J.D.
CHRISTOPHER S. HARRISON, Ph.D., J.D.
WILLIAM M. HART, B.A., J.D.
JOHN R. HAYS, JR., B.A., J.D.
SUSAN J. HIGHTOWER, B.A., M.A., J.D.
KENNETH E. HOUP, JR., B.A., J.D.
RANDY R. HOWRY, B.J., J.D.
MONTY G. HUMBLE, B.A., J.D.
DIRK M. JORDAN, B.A., J.D.
JEFFREY R. JURY, B.A., J.D.
PATRICK O. KEEL, B.A., J.D.
DOUGLAS L. KEENE, B.A., M.Ed., Ph.D.
CHARI L. KELLY, B.A., J.D.
ROBERT N. KEPPLE, B.A., J.D.
MARK L. KINCAID, B.B.A., J.D.
ALICE L. KING, B.A., J.D.
MARGARET A. KIRKENDALL, B.A., J.D.
MICHAEL R. KRAWZSENEK, B.S., J.D.
AMI L. LARSON, B.A., J.D.
LARRY LAUDAN, B.A., M.A., Ph.D.
JODI R. LAZAR, B.A., J.D.
KEVIN L. LEAHY, B.A., J.D.
DAVID P. LEIN, B.A., M.P.A., J.D.
ANDRES J. LINETZKY, J.D., LL.M.

James-Lloyd Loftis, B.B.A., J.D.
Jim Marcus, B.A., J.D.
Harry S. Martin, A.B., M.L.S., J.D.
Frances L. Martinez, B.A., J.D.
Laura A. Martinez, B.A., J.D.
Philip K. Maxwell, B.A., J.D.
Peter C. McCabe, B.A., J.D.
Ann M. McGeehan, B.A., J.D.
Barry F. McNeil, B.A., J.D.
Margaret M. Menicucci, B.A., J.D.
Jo Ann Merica, B.A., J.D.
Ranelle M. Meroney, B.A., J.D.
Elizabeth N. Miller, B.A., J.D.
Jonathan F. Mitchell, B.A., J.D.
Daryl L. Moore, B.A., M.L.A., J.D.
Edwin G. Morris, B.S., J.D.
Sarah J. Munson, B.A., J.D.
Manuel H. Newburger, B.A., J.D.
David G. Nix, B.S.E., LL.M., J.D.
Joseph W. Noel, B.S.E., J.D., M.S.L.S.
Jane A. O'Connell, B.A., M.S., J.D.
Patrick L. O'Daniel, B.B.A., J.D.
M. Ariel Payan, B.A., J.D.
Mark L. Perlmutter, B.S., J.D.
Eliza T. Platts-Mills, B.A., J.D.
William C. Pollard, B.A., J.D.
Jonathan Pratter, B.A., M.S.L.I.S., J.D.
Velva L. Price, B.A., J.D.
Brian C. Rider, B.A., J.D.
Robert M. Roach, Jr., B.A., J.D.
Brian J. Roark, B.A., J.D.
Betty E. Rodriguez, B.S.W., J.D.
James D. Rowe, B.A., J.D.
Matthew C. Ryan, B.A., J.D.
Karen R. Sage, B.A., J.D.
Mark A. Santos, B.A., J.D.
James J. Scheske, B.A., J.D.
Michael J. Schless, B.A., J.D.
Susan Schultz, B.S., J.D.
Amy J. Schumacher, B.A., J.D.
Suzanne Schwartz, B.J., J.D.
Richard J. Segura, Jr., B.A., J.D.
David A. Sheppard, B.A., J.D.
Hon. Eric M. Shepperd, B.A., J.D.
A. Haag Sherman, B.B.A., J.D., C.P.A.
Ronald J. Sievert, B.A., J.D.
Stuart R. Singer, A.B., J.D.
Hon. Bea A. Smith, B.A., M.A., J.D.
Lydia N. Soliz, B.B.A., J.D.
James. M. Spellings, Jr., B.S., J.D.
Kacie L. Starr, B.A., J.D.
Matthew R. Steinke, B.A., M.L.I.S., J.D.
William F. Stutts, B.A., J.D.
Matthew J. Sullivan, B.S., J.D.
Gretchen S. Sween, B.A., M.A., Ph.D., J.D.
Jeremy S. Sylestine, B.A., J.D.
Bradley P. Temple, B.A., J.D.
Sherine E. Thomas, B.A., J.D.
Michael J. Tomsu, B.A., M.B.A., J.D.
Terry O. Tottenham, B.S., LL.M., J.D.
Michael S. Truesdale, B.A., M.A., J.D.
Timothy J. Tyler, B.A., J.D.
Susan S. Vance, B.B.A., J.D.
Lana K. Varney, B.A., J.D.
Deborah M. Wagner, B.A., M.Arch., J.D.
Roderick E. Wetsel, B.A., J.D.
Benjamin B. Whittenburg, B.B.A., M.P.A., J.D.
Randall B. Wilhite, B.B.A., J.D.
David G. Wille, B.S.E.E., M.S.E.E., J.D.
Andrew M. Williams, B.A., J.D.
Mark B. Wilson, B.A., M.A., J.D.
Christina T. Wisdom, B.A., J.D.
Stephen M. Wolfson, B.A., M.S., J.D.
Hon. Paul L. Womack, B.S., J.D.
Lucille D. Wood, B.A., J.D.
Denney L. Wright, B.B.A., J.D., LL.M.
Daniel J. Young, B.A., J.D.

VISITING PROFESSORS

Owen L. Anderson, B.A., J.D.
Antonio H. Benjamin, LL.B., LL.M.
Pa De Larranaga Monjaraz, LL.B., LL.M., Ph.D.
Victor Ferreres, J.D., LL.M., J.S.D.
Emily C. Hammond, B.S., J.D.
Andrew Kull, B.A., B.A., M.A., J.D.
Graham B. Strong, B.A., J.D., LL.M.

* * *

Texas Law Review

Volume 92 Number 7 June 2014

* * *

Texas Law Review

Volume 92, Number 7, June 2014

SYMPOSIUM:
STEPS TOWARD EVIDENCE-BASED IP

Foreword—The Path of IP Studies: Growth, Diversification, and Hope
John M. Golden, Robert P. Merges & Pamela Samuelson 1757

Understanding the Realities of Modern Patent Litigation
John R. Allison, Mark A. Lemley & David L. Schwartz 1769

The (Still) Shaky Foundations of Trade Secret Law
Robert G. Bone 1803

Beyond the Incentive–Access Paradigm? Product Differentiation & Copyright Revisited
Oren Bracha & Talha Syed 1841

Experimental Tests of Intellectual Property Laws' Creativity Thresholds
Christopher Buccafusco, Zachary C. Burns, Jeanne C. Fromer & Christopher Jon Sprigman 1921

Copyright's Topography: An Empirical Study of Copyright Litigation
Christopher A. Cotropia & James Gibson 1981

Trademark Surveys: An Undulating Path
Shari Seidman Diamond & David J. Franklyn 2029

Litigation in the Middle: The Context of Patent-Infringement Injunctions
John M. Golden 2075

Trademarks as Search-Engine Keywords: Who, What, When?
David A. Hyman & David J. Franklyn 2117

The Idiosyncrasy of Patent Examiners: Effects of Experience and Attrition
Ronald J. Mann 2149

The Essential Role of Courts
for Supporting Innovation
Erin O'Hara O'Connor & Christopher R. Drahozal 2177

Copyright Registrations: Who, What, When,
Where, and Why
Dotan Oliar, Nathaniel Pattison & K. Ross Powell 2211

Symposium

Steps Toward Evidence-Based IP

The Path of IP Studies: Growth, Diversification, and Hope

John M. Golden,* Robert P. Merges** & Pamela Samuelson***

In *Bilski v. Kappos*,[1] the U.S. Supreme Court made it official: we live in "the Information Age."[2] Information's paramount economic significance is now undeniable. In the century's first decade, intangible assets were estimated to account for "[a]s much as three-quarters of the value of publicly traded companies."[3] Related to this predominance of "conceptual" assets,[4] public policymakers and private actors now widely recognize innovation—a form of "information in action"—as vital to economic growth.[5] Moreover, in an age of drone warfare,[6] the Stuxnet computer virus,[7] panopticon-like electronic surveillance,[8] cheap gene sequencing,[9]

---

* Loomer Family Professor in Law, The University of Texas at Austin.

** Wilson Sonsini Goodrich & Rosati Professor of Law and Co-Director, Berkeley Center for Law & Technology, University of California at Berkeley.

*** Richard M. Sherman Distinguished Professor of Law, Professor of Information, and Co-Director, Berkeley Center for Law & Technology, University of California at Berkeley.

1. 130 S. Ct. 3218 (2010).

2. *Id.* at 3227–29.

3. *A Market for Ideas*, ECONOMIST, Oct. 22, 2005, at 3, 3 *available at* http://www.economist.com/node/5014990.

4. Alan Greenspan, Chairman, Fed. Reserve Bd., Intellectual Property Rights, Remarks at the Stanford Institute for Economic Policy Research Economic Summit (Feb. 27, 2004), *available at* http://www.federalreserve.gov/Boarddocs/Speeches/2004/200402272/default.htm ("[T]he economic product of the United States has become so predominantly conceptual.").

5. *See, e.g.*, BILL GATES, INNOVATION WITH IMPACT: FINANCING 21ST CENTURY DEVELOPMENT 6 (2011), *available at* http://www.stampoutpoverty.org/wp-content/uploads/2012/10/Gates-Report.pdf ("I believe innovation is the most powerful force for change in the world." (emphasis omitted)); NAT'L ECON. COUNCIL ET AL., A STRATEGY FOR AMERICAN INNOVATION: SECURING OUR ECONOMIC GROWTH AND PROSPERITY 1 (2011), *available at* http://www.whitehouse.gov/sites/default/files/uploads/InnovationStrategy.pdf ("America's future economic growth and international competitiveness depend on our capacity to innovate."); Greenspan, *supra* note 4 (noting a "shift of emphasis from physical materials to ideas" as engines of economic growth).

6. Jo Becker & Scott Shane, *Secret 'Kill List' Proves a Test of Obama's Principles and Will*, N.Y. TIMES, May 29, 2012, http://www.nytimes.com/2012/05/29/world/obamas-leadership-in-war-on-al-qaeda.html.

7. William J. Broad et al., *Israeli Test on Worm Called Crucial in Iran Nuclear Delay*, N.Y.

and massive computer-related breaches of privacy,[10] information and innovation have assumed unprecedented prominence even in "noneconomic" policy areas such as national security, liberty, and personal health. Although world events can still turn on Bismarck's "iron and blood,"[11] knowledge and bits increasingly determine wealth, power, and everyday life.

Focus on information and innovation inevitably leads to concern with intellectual property.[12] "Intellectual property" or "IP" is an umbrella term for a menagerie of legal regimes, such as copyright, patent, trademark, and trade secrets, that provide or fortify private rights in information.[13] Although a variety of rationales for IP regimes have been posited, the dominant rationales, particularly in the United States, have been instrumental, viewing IP rights as means to ends.[14] Despite this instrumental outlook, however, good empirical evidence about IP regimes' operation and potential for reform has typically been frustratingly sparse. Some of this sparseness has reflected the difficulty of assembling such information, but much has reflected a lack of heavy investment in serious IP empirical studies. The Information Age, an age that "empowers people with new

---

TIMES, Jan. 15, 2011, http://www.nytimes.com/2011/01/16/world/middleeast/16stuxnet.html.

8. James B. Rule, Op-Ed., *The Price of the Panopticon*, N.Y. TIMES, June 11, 2013, http://www.nytimes.com/2013/06/12/opinion/the-price-of-the-panopticon.html.

9. Andrew Pollack, *Company Unveils DNA Sequencing Device Meant to be Portable, Disposable and Cheap*, N.Y. TIMES, Feb. 17, 2012, http://www.nytimes.com/2012/02/18/health/oxford-nanopore-unveils-tiny-dna-sequencing-device.html.

10. *E.g.*, Michael S. Schmidt & Nicole Perlroth, *Credit Card Data Breach at Barnes & Noble Stores*, N.Y. TIMES, Oct. 23, 2012, http://www.nytimes.com/2012/10/24/business/hackers-get-credit-data-at-barnes-noble.html.

11. Otto von Bismarck, Prussian Chancellor, Statement on the German Future (Sept. 30, 1862), *in* ENCYCLOPEDIA OF THE AGE OF IMPERIALISM, 1800-1914, at 784, 785 (Carl Cavanagh Hodge ed., 2008) ("[I]t is not by speeches and majority resolutions that the great questions of the time are decided . . . but by iron and blood.").

12. *See, e.g.*, Greenspan, *supra* note 4 ("[R]egardless of its causes, conceptualization is irreversibly increasing the emphasis on the protection of intellectual, relative to physical, property rights.").

13. *See* ROGER E. SCHECHTER & JOHN R. THOMAS, THE LAW OF COPYRIGHTS, PATENTS AND TRADEMARKS 1 (2003) (noting that the "three core [IP] fields" of copyright, patent, and trademark "are complemented by a number of statutes and common law doctrines in fields ranging from trade secrets, to the right of publicity, to false advertising");William Fisher, *Theories of Intellectual Property*, *in* NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 168 (Stephen R. Munzer ed., 2001) ("The term 'intellectual property' refers to a loose cluster of legal doctrines that regulate the uses of different sorts of ideas and insignia.").

14. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 4 (2003) ("Today it is acknowledged that analysis and evaluation of intellectual property law are appropriately conducted within an economic framework that seeks to align that law with the dictates of economic efficiency."); Fisher, *supra* note 13, at 169 (stating that the "most popular" of "four approaches" to intellectual property theory "employs the familiar utilitarian guideline that lawmakers' beacon when shaping property rights should be the maximization of net social welfare").

capacities to perform statistical analyses,"[15] has caused this last worm to turn. IP legal studies have entered a new period of very substantial empirical scholarship, a period that might enable more precise and accurate policy prescriptions than ever before.

This symposium issue presents scholarship that aspires to push forward understanding of how IP functions and how it might improve. In view of the complex, diverse, and ever changing environments in which new information develops, definitive answers on IP's performance and design cannot be expected anytime soon. But we can hope to take what this symposium terms "Steps Toward Evidence-Based IP." Some steps might be largely promissory in nature, providing greater insight or understanding that might lead to practical results down the road. Some steps might suggest more immediate, discrete reforms. In any event, perhaps the greatest hope for this symposium is that it will herald ever greater commitment to more systematic and sophisticated studies of intellectual property's normative justifications, empirical context, and actual and potential practical performance. In this sense, publication of this symposium issue should be more of a hopeful beginning than an accomplished end.

On the other hand, talk of this issue as a beginning should not obscure the fact that today's intellectual property studies themselves build on decades of work that have already transformed IP studies from one of the legal academy's more minor eddies into one of the academy's most rapidly broadening streams. Just as the current Information Age reflects decades of relentless development of communications and computing technologies, the very existence of this symposium issue reflects decades of growth in IP scholarship and the IP scholarly community itself. As we think about where present empirically oriented intellectual property studies might take us, we should take brief note of the trajectory on which IP studies and the IP community have already traveled.

A few decades ago, a leading general law review's dedication of an entire issue to largely empirically oriented IP studies would have been inconceivable. At that time, full-time professors teaching IP were a rarity at accredited U.S. law schools. IP teaching was largely the domain of practicing lawyers moonlighting as adjunct professors. Written IP scholarship tended to exist in a "bell jar"—or perhaps a series of separate bell jars for different fields of IP such as patent and copyright—largely segregated from the rest of legal academic scholarship (never mind economic scholarship) both in content and in locus of publication. IP scholarship was most likely to appear in a relatively small number of specialized, substantially practitioner-oriented journals—for example, the *Bulletin of the Copyright Society of the U.S.A.*, the *Journal of the Patent*

15. Bilski v. Kappos, 130 S. Ct. 3218, 3229 (2010).

Office Society, the *Trademark Reporter*, and the American Patent Law Association's *APLA Quarterly Journal*.

Of course, there were exceptions, for which a few "classics" might stand as representatives. Books by Benjamin Kaplan[16] and Ray Patterson[17] offered sweeping historical accounts of copyright law. In 1969 and 1970, Melville Nimmer's *Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?*[18] and Paul Goldstein's *Copyright and the First Amendment*[19] grappled with tensions between free speech interests and copyright's provision of private powers to restrict and tax expression.[20] In 1970, Stephen Breyer's *The Uneasy Case for Copyright*[21] gave a critical account of copyright's justification by both moral-rights theories and economic rationales.[22] In 1966 and 1977, Edmund Kitch's *New Standards for Patents*[23] and *The Nature and Function of the Patent System*[24] likewise brought to patent literature the sort of analysis characteristic of early stages of the law-and-economics revolution.[25]

At the close of the 1970s, however, one might still have wondered whether IP scholarship had a very substantial future. A constellation of isolated lights was far from a cluster. It was only with the multiplication

16. BENJAMIN KAPLAN ET AL., AN UNHURRIED VIEW OF COPYRIGHT REPUBLISHED (AND WITH CONTRIBUTIONS FROM FRIENDS) 1 (Iris C. Geik et al. eds., Lexis Nexis Mathew Bender 2005) (beginning his account with "the Gutenberg revolution, which started it all").

17. LYMAN RAY PATTERSON, COPYRIGHT IN HISTORICAL PERSPECTIVE (1968).

18. Melville B. Nimmer, *Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?*, 17 UCLA L. REV. 1180 (1970).

19. Paul Goldstein, *Copyright and the First Amendment*, 70 COLUM. L. REV. 983 (1970).

20. *Id.* at 984; Nimmer, *supra* note 18, at 1180.

21. Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970).

22. *Id.* at 284.

23. Edmund W. Kitch, Graham v. John Deere Co.: *New Standards for Patents*, 1966 SUP. CT. REV. 293.

24. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977).

25. *See, e.g.*, Kitch, *supra* note 23, at 301 (explaining how "[t]he non-obviousness test [for patentability] shares the economic premises of both the novelty and genius tests"); Kitch, *supra* note 24, at 266 ("[T]he view of the patent system offered here conceives of the process of technological innovation as one in which resources are brought to bear upon an array of prospects, each with its own associated sets of probabilities of costs and returns."). *See generally* Edmund Kitch, *Foreword: The Fire of Truth: A Remembrance of Law and Economics at Chicago, 1932–1970*, 26 J.L. & ECON. 163, 204 (1983) (quoting Harold Demsetz as recounting how law-and-economics trailblazers such as Aaron Director and Ronald Coase sought "to explain lots of things" through the assumptions "that people try to maximize and that really there is competition in the attempt to maximize"); Ejan Mackaay, *History of Law and Economics*, *in* 1 ENCYLOPEDIA OF LAW AND ECONOMICS 65, 76–77 (Boudewijn Bouckaert & Gerrit De Geest eds., 1999) (describing the "research programme which has occupied the law and economics community through the 1970s" as fundamentally seeking "to tease out, using concepts borrowed from neoclassical economics, what would be 'efficient' rules . . . and to determine whether the common law in fact conforms to this logic"), *available at* http://encyclo.findlaw.com/0200book.pdf.

and diversification of IP scholarship in the 1980s and early 1990s that it became clear that the associated scholarly community had achieved a sort of bell-jar-defying escape velocity. During this decade and a half, IP scholarship grew not only in quantity but also in interdisciplinarity. The period saw continuing work in an economic vein—for example, in Wendy Gordon's *Fair Use as Market Failure*[26] and Part IV of Terry Fisher's *Reconstructing the Fair Use Doctrine*.[27] But an expanding corpus of IP literature also prominently featured, *inter alia*, historical and comparative law perspectives,[28] ethnographic attention to scientific norms,[29] philosophical influences,[30] lessons from linguistics,[31] and critical concern with public-choice theory.[32] Meanwhile, a burgeoning body of technology and intellectual property law reviews provided increasing publication opportunities outside general-purpose legal journals.[33]

Of particular relevance to this symposium's empirical-studies focus, empirical IP studies have followed their own distinctive evolutionary path. In a 1952 report for the Senate Judiciary Committee, Fritz Machlup famously lamented how the state of empirical knowledge about the patent system made it impossible to know whether, economically speaking, the

---

26. Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the* Betamax *Case and its Predecessors*, 82 COLUM. L. REV. 1600, 1602 (1982) (aiming to improve legal doctrine and its predictability "by unifying the various traditional fair use factors into one economic model").

27. William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659, 1699 (1988) ("compar[ing] alternative legal rules on the basis of their capacity to promote 'economic efficiency'" as defined therein).

28. *See, e.g.*, Jane C. Ginsburg, *A Tale of Two Copyrights: Literary Property in Revolutionary France and America*, 64 TUL. L. REV. 991, 995 (1990) (discussing "the rhetoric and policies of the first French and U.S. copyright laws as well as their application in practice"); J.H. Reichman, *Design Protection in Domestic and Foreign Copyright Law: From the Berne Revision of 1948 to the Copyright Act of 1976*, 1983 DUKE L.J. 1143, 1143 (1983) (investigating intellectual property rights in "ornamental designs of useful articles").

29. *See, e.g.*, Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L.J. 177, 179 (1987) (analyzing "the interaction of intellectual property rights with research science norms in biotechnology-related fields").

30. *See, e.g.*, Fisher, *supra* note 27, at 1744 (discussing, in Part V, "how the fair use doctrine might be rebuilt . . . to advance a substantive conception of a just and attractive intellectual culture"); Wendy J. Gordon, *An Inquiry into the Merits of Copyright: The Challenges of Consistency, Consent, and Encouragement Theory*, 41 STAN. L. REV. 1343, 1395–96 (1989) (discussing potential questions of "how property of various kinds would be handled in a regime governed by John Rawls's principles of justice, in Bruce Ackerman's liberal state, or in Robert Nozick's minimal state").

31. *See, e.g.*, Rochelle Cooper Dreyfuss, *Expressive Genericity: Trademarks as Language in the Pepsi Generation*, 65 NOTRE DAME L. REV. 397, 399 (1990) ("draw[ing] upon the linguistic literature to show that discourse is indeed inhibited as control over words is lost").

32. *See, e.g.*, Jessica D. Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857, 880 (1987) (discussing "suggest[ions] that courts should view statutes as negotiated, enforceable bargains between lobbyists and legislators").

33. *E.g.*, 1 HIGH TECH. L.J. (1986) (now the *Berkeley Technology Law Journal*); 1 TEX. INTELL. PROP. L.J. (1992–1993); 1 HARV. J.L. & TECH. (1988).

system as a whole was a good or bad thing.[34] Machlup further suggested that, despite not being able to answer such large-scale questions, economists could give sound advice on micro-reforms designed to provide "'a little more or a little less' of various ingredients of the patent system."[35] But here too, Machlup cautioned that "[f]actual data of various kinds may be needed even before some of these decisions can be made with confidence."[36]

For decades, relatively little progress was seeming to be made in gathering the data necessary to answer questions either about IP regimes' overall desirability or even about the desirability of more micro-level reforms.[37] Trailblazing empirical work in the area came largely from scholars based outside of law schools—mainly economists such as Jacob Schmookler,[38] F.M. Scherer,[39] Edwin Mansfield,[40] Zvi Griliches,[41] Ariel Pakes,[42] Mark Schankerman,[43] Richard Levin,[44] and, in occasional moon-

34. STAFF OF SUBCOMM. ON PATENTS, TRADEMARKS, & COPYRIGHTS, S. COMM. ON THE JUDICIARY, 85TH CONG., AN ECONOMIC REVIEW OF THE PATENT SYSTEM 79 (Comm. Print 1958) (prepared by Fritz Machlup) ("No economist, on the basis of present knowledge, could possibly state with certainty that the patent system, as it now operates, confers a net benefit or a net loss upon society.").

35. *Id.* at 80.

36. *Id.*

37. *See* George L. Priest, *What Economists Can Tell Lawyers About Intellectual Property: Comment on Cheung*, *in* 8 RESEARCH IN LAW AND ECONOMICS 19, 19–20 (John Palmer & Richard O. Zerbe, Jr. eds., 1986) (describing "classic literature on the scope of the patent right" as featuring a nearly zero "ratio of empirical demonstration to assumption" and as having failed to foster "an approach with a firmer empirical base"). *See generally* 1 ECONOMICS OF INTELLECTUAL PROPERTY LAW, at xii (Robert P. Merges ed., 2007) (noting "the progression of economic methodology" in articles relating to patent law, with "the qualitative, policy-oriented style of the Kahn article giv[ing] way to Nordhaus' models of patent life and then the empirical approach of authors such as Schankerman and Pakes").

38. *See* Richard R. Nelson, *Demand and Discovery in Technological Innovation*, 12 MINERVA 277, 277 (1974) (reviewing JACOB SCHMOOKLER, PATENTS, INVENTION, AND ECONOMIC CHANGE: DATA AND SELECTED ESSAYS (1972)) (describing how, through "[p]ainstakingly empirical" work, "Jacob Schmookler probably contributed more than any other economist to our understanding of the processes of technological advance").

39. *E.g.*, FREDERIC M. SCHERER ET AL., PATENTS AND THE CORPORATION: A REPORT ON INDUSTRIAL TECHNOLOGY UNDER CHANGING PUBLIC POLICY 4 (2d ed. 1959) (collecting "several sources of data . . . as the basis for conclusions on the use of patents by corporations and the requisites for an effective patent policy").

40. *E.g.*, Edwin Mansfield, Mark Schwartz & Samuel Wagner, *Imitation Costs and Patents: An Empirical Study*, 91 ECON. J. 907, 907 (1981) (studying the costs of imitation in the chemical, drug, electronics, and machinery industries); Edwin Mansfield, *Patents and Innovation: An Empirical Study*, 32 MGMT. SCI. 173, 173 (1986) (using empirical data from manufacturing firms to analyze the relationship between patent protection and commercialization).

41. *E.g.*, John Bound et al., *Who Does R&D and Who Patents?*, *in* R&D, PATENTS AND PRODUCTIVITY 21 (Zvi Griliches ed., 1984) (reporting preliminary results from examination of "financial variables, research and development expenditures, and data on patents" for U.S. manufacturing firms from 1972 through 1978).

42. Mark Schankerman & Ariel Pakes, *Estimates of the Values of Patent Rights in European Countries During the Post-1950 Period*, 96 ECON. J. 1052, 1052 (1986) (using empirical data on

lighting from similarly trailblazing theoretical work, Richard Nelson.[45] In the 1990s, serious empirical work by legal scholars began to pick up,[46] and in the past decade, legal scholars' engagement in such work greatly accelerated—to a point where a separate electronic serial number for distributing abstracts from IP empirical studies was warranted.[47]

As with IP studies more generally, the story of IP empirical studies flowering has been one of more than a mere growth in volume. Broad-brush approaches characteristic of early work—for example, looking at total numbers of patent grants as a function of factors such as national GDP[48]—are now supplemented seemingly daily by finer-tuned studies that, for example, compare the treatment of particular counterpart patent applications filed in U.S., European, and Japanese patent offices.[49] Significant contextualization of data and its analysis has become expected, if not absolutely necessary. Studies reporting data that crosses industrial or technological lines now routinely report not only overall numbers but also results for different industrial or technological categories.[50] Other studies

---

payment of patent renewal fees to estimate the private value of patents in the United Kingdom, France, and Germany).

43. *E.g.*, *id.*

44. *E.g.*, Richard C. Levin, Alvin K. Klevorick, Richard R. Nelson & Sidney G. Winter, *Appropriating the Returns from Industrial Research and Development*, *in* 3 BROOKINGS PAPERS ON ECONOMIC ACTIVITY 783, 785 (1987) (surveying R&D managers to help assess effectiveness of patents as a mechanism for appropriating innovation value).

45. *Compare id.* (same), *with* RICHARD R. NELSON & SIDNEY G. WINTER, AN EVOLUTIONARY THEORY OF ECONOMIC CHANGE 22 (1982) (contending "that the treatment of innovation within an evolutionary model provides a far better basis for modeling economic growth fueled by technical advance than does the neoclassical model"), *and* Richard R. Nelson & Nathan Rosenberg, *in* NATIONAL INNOVATION SYSTEMS: A COMPARATIVE ANALYSIS 3, 4–5 (Richard R. Nelson ed., 1993) (discussing how comparative study of "national innovation systems" "requires, at least, some agreement on basic terms and concepts" and describing "how technical advance occurs in the modern world, and the key processes and institutions involved").

46. *See, e.g.*, John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 187 (1998) (describing and analyzing data on "written, final validity decisions by either district courts or the Federal Circuit . . . from early 1989 through 1996").

47. *See* About the *Intellectual Property: Empirical Studies eJournal*, SOC. SCI. RES. NETWORK, http://www.ssrn.com/update/lsn/lsn_intell-prop-empirical.html ("This eJournal distributes working and accepted paper abstracts that provide quantitative and qualitative empirical and experimental studies of intellectual property, innovation, and related laws.").

48. *See, e.g.*, ZVI GRILICHES, *Patent Statistics as Economic Indicators: A Survey*, 28 J. ECON. LITERATURE 1661 (1990), *reprinted in* R&D AND PRODUCTIVITY: THE ECONOMETRIC EVIDENCE 287, 290 (1998) (explaining that "the information implicit in patent counts, in the number of patents issued at different times, in different countries, and to different types of inventors. . . . is the type of information that economists have largely focused on" and would be the principal focus of "this survey").

49. Paul H. Jensen et al., *Application Pendency Times and Outcomes Across Four Patent Offices* 2 (Intellectual Prop. Research Inst. of Austl., Working Paper No. 01/08, 2008), *available at* http://www.ipria.org/publications/wp/2008/IPRIAWP01.2008.pdf.

50. *See, e.g.*, Stuart J.H. Graham, Robert P. Merges, Pam Samuelson & Ted Sichelman, *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24

focus more specifically on empirical aspects of IP within a particular industry, technology, or another subset of institutional contexts.[51] Empirical studies seek to generate useful data through any of a variety of techniques, including surveys, interviews, hand coding, electronic data mining, and stylized experiments.

The growing empirical sophistication and capacities of IP legal studies have become evident. IP scholars sometimes adapt to their purposes data sets developed by others, but they often build up their own data sets, sometimes of prodigious size. The National Bureau of Economic Research's U.S. Patent Citations Data File has now been joined by a number of litigation-oriented databases such as Lex Machina and DocketX, as well as a variety of proprietary databases to which private firms have occasionally allowed at least limited scholarly access.[52] As with techniques of more systematic data gathering, the use of more sophisticated techniques of empirical analysis has migrated from economics and other fields into the heart of the work of IP legal scholars themselves, sometimes through direct partnerships between IP scholars and members of other academic departments that have greater traditions of technically sophisticated statistical analysis.

This background of IP studies' growth and diversification resonates with this symposium's gathering together of diverse forms of scholarship from a variety of IP fields. First, there are a series of litigation-related studies. The studies of John Allison, Mark Lemley, and David Schwartz and of Chris Cotropia and Jim Gibson each limn litigation landscapes in patent and copyright, respectively, and continue the work of constructing systematic databases that both their original authors and other researchers can later use.[53] A narrower study by one of this Foreword's coauthors focuses on lawsuits in which patent-infringement injunctions have issued, with this narrower focus facilitating concern with the specific language that

---

BERKELEY TECH. L.J. 1255, 1277 tbl.1 (2009) (providing separate columns of data for patents held by medical device, software or Internet, biotechnology, and information-technology hardware start-up companies).

51. *See, e.g.*, Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEXAS L. REV. 961, 966 (2005) (using "a set of about 60 interviews with a variety of professionals knowledgeable about the software industry" to develop "qualitative information about the motivations and practices that form the institutional environment within which software firms operate").

52. *See, e.g.*, James Bessen & Michael J. Meurer, Essay, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 389 n.6, 394–95 (2014) (describing use of aggregated results from a survey conducted by RPX, "a firm that helps companies manage risk from exposure to patent litigation," and of data from "a comprehensive database of [non-practicing entity] litigation developed by RPX").

53. John R. Allison, Mark A. Lemley & David L. Schwartz, *Understanding the Realities of Modern Patent Litigation*, 92 TEXAS L. REV. 1769, 1770 (2014); Christopher A. Cotropia & James Gibson, *Copyright's Topography: An Empirical Study of Copyright Litigation*, 92 TEXAS L. REV. 1981, 1984 (2014).

those injunctions feature and how that language connects to the detailed circumstances in which it appears.[54] Finally, Shari Diamond and David Franklyn contribute a litigation study having a very different methodology: they report on a "meta-survey" asking about the use of surveys in trademark litigation, including in often hidden, out-of-court roles in promoting voluntary dismissal or settlement.[55]

In a second quartet of Articles, David Hyman and David Franklyn; Erin O'Hara O'Connor and Chris Drahozal; Ronald Mann; and Dotan Oliar, Nathaniel Pattison, and K. Ross Powell look at other sides of IP-related processes—namely, (1) purchases of rights in trademarked terms as keywords for internet searches;[56] (2) contracts relating to innovation;[57] (3) patent examination at the U.S. Patent and Trademark Office (USPTO);[58] and (4) copyright registration with the U.S. Copyright Office.[59] More specifically, Hyman and Franklyn look at questions of who typically purchases search rights in trademarked terms and how stable the pattern of such purchases is over time.[60] O'Hara O'Connor and Drahozal study the extent to which private parties reserve the right to go to court, rather than arbitration, in disputes about rights in information or innovation.[61] Mann studies the relationship between examiner characteristics such as experience, and issued-patent characteristics such as the number of claims.[62] Oliar, Pattison, and Powell use official records of copyright registrations to examine questions such as where the registering entities for a particular type of work are likely to call home, and whether such an entity is likely to be an individual or a firm.[63]

Finally, a trio of symposium Articles abstracts in different ways from the collection of empirical data about how existing IP systems operate. Chris Buccafusco, Zachary Burns, Jeanne Fromer, and Chris Sprigman explore how rules might be designed to stimulate innovation by discussing a series of experiments in which subjects perform various tasks with

---

54. John M. Golden, *Litigation in the Middle: The Context of Patent-Infringement Injunctions*, 92 TEXAS L. REV. 2075, 2094–96 (2014).

55. Shari Seidman Diamond & David J. Franklyn, *Trademark Surveys: An Undulating Path*, 92 TEXAS L. REV. 2029, 2030–31 (2014).

56. David A. Hyman & David J. Franklyn, *Trademarks as Search-Engine Keywords: Who, What, When?*, 92 TEXAS L. REV. 2117 (2014).

57. Erin O'Hara O'Connor & Christopher R. Drahozal, *The Essential Role of Courts for Supporting Innovation*, 92 TEXAS L. REV. 2177 (2014).

58. Ronald J. Mann, *The Idiosyncrasy of Patent Examiners: Effects of Experience and Attrition*, 92 TEXAS L. REV. 2149 (2014).

59. Dotan Oliar, Nathaniel Pattison & K. Ross Powell, *Copyright Registrations: Who, What, When, Where, and Why*, 92 TEXAS L. REV. 2211 (2014).

60. Hyman & Franklyn, *supra* note 56, at 2118.

61. O'Hara O'Connor & Drahozal, *supra* note 57, at 2181.

62. Mann, *supra* note 58, at 2151.

63. Oliar, Pattison & Powell, *supra* note 59, at 2213–14.

different types of reward structures in view.[64] Bob Bone and the duo of Oren Bracha and Talha Syed "abstract" in a more traditional way by focusing on questions of IP theory.[65] Bone revisits and extends an earlier argument that trade secret law lacks normative justification independent of other normative structures such as those of contract or tort.[66] Bracha and Syed contribute to a nascent literature on copyright's justification that looks for insights in theories of product differentiation.[67] Such "abstracted" scholarship remains an important part of any forward-looking empirical enterprise: theoretical concepts and understandings are necessary to make the leap from empirical studies of the past to legal prescriptions for the future.[68]

The resulting mix of topical areas and methodologies—both in this symposium and in IP studies more generally—can be discomfiting and even a bit disorienting. There is cause for argument that at least certain subsets of what is now commonly called "intellectual property" are best considered more separately than all together.[69] On the other hand, attention to a diversity of legal fields—whether different IP regimes or alternative legal regimes address analogous concerns—can offer some of the benefits that "generalists" are sometimes thought to have over "specialists"—for example, greater capacity for creativity and trans-substantive synthesis that can follow from a lack of precommitment to largely accepted assumptions or understandings within the specialist's field.

Likewise, in at least one sense, the benefits of methodological diversity are self-evident. Each approach to study within an IP area, indeed each individual study, has something to teach us about IP rights. An empirical study of variability among patent examiners, for example, might lead to a call for better patent office quality control. Or it might simply push private actors to diversify their patent filings among different examining groups. On the theoretical side, better ways of grouping and organizing doctrines might stimulate new thoughts on core features of IP

64. Christopher Buccafusco, Jeanne Fromer & Christopher Sprigman, *Experimental Tests of Intellectual Property Laws' Creativity Thresholds*, 92 TEXAS L. REV. 1921, 1922–23 (2014).

65. Robert G. Bone, *The (Still) Shaky Foundations of Trade Secret Law*, 92 TEXAS L. REV. 1803 (2014); Oren Bracha & Talha Syed, *Beyond the Incentive-Access Paradigm? Product Differentiation & Copyright Revisited*, 92 TEXAS L. REV. 1841 (2014).

66. Bone, *supra* note 65, at 1804.

67. Bracha & Syed, *supra* note 65, at 1841.

68. *Cf.* Albert Einstein, *Foreword* to GALILEO GALILEI: DIALOGUE CONCERNING THE TWO CHIEF WORLD SYSTEMS—PTOLEMAIC & COPERNICAN, at xvii (Stillman Drake trans., 2d ed. 1967) (rejecting the notion of a "sharp contrast" between empirical work and theory by arguing, *inter alia*, that "[t]here is no empirical method without speculative concepts and systems").

69. *See* William Fisher III, *The Disaggregation of Intellectual Property: How the Laws of Intellectual Property Have Grown—and Grown Apart*, HARV. L. BULL., Summer 2004, at 24, 29–31, *available at* http://www.law.harvard.edu/news/bulletin/2004/summer/feature_2-1.php (noting favorable and unfavorable aspects of a "disaggregation" of IP regimes).

systems. Such thoughts might stimulate empirical study that leads to new insight into how current IP functions or malfunctions.

Additionally, methodological diversity can generate a significant payoff when multiple methodologies reach the same conclusion. Convergence of this sort sends a powerful message. We can more confidently argue for policy prescriptions when multiple scholars using different tools arrive at the same conclusion. So for example, when economic modeling, ethnographic interviews, and large-scale event studies all indicate that extending the term of copyright protection adds nothing to creators' incentives, we can feel confident in advocating against further increases in the length of copyright. At the very least, methodological and scholarly consensus on this scale can help reveal the naked power of lobbying groups. The spectacle of a situation in which a policy proposal is opposed by all serious scholars but nonetheless gains political traction can suggest just how completely special-interest muscle can trump objective policy analysis.

Methodological diversity is actually essential if we are to have real confidence in our understanding of how IP works or should work. A new, policy-oriented synthesis can be robust precisely because it is built on many solid, discrete studies. To reach a high level in such a synthesis, we will need many more diverse studies of discrete phenomena. But as these pile up, we can hope to arrive at a firmer foundation for policy prescriptions than IP studies have ever known.

Although this symposium issue leaves us significantly short of a confident new synthesis, the Articles herein already suggest points of convergence and themes that might have significant policy implications. A number of this issue's Articles suggest just how much we have to learn about the still relatively dark world of selection of disputes for litigation,[70] for alternative forms of post hoc resolution,[71] and for advance contractual arrangements.[72] Quite distinct studies of patent litigation and copyright litigation suggest that the typical nature of IP lawsuits might not match the nature of those most salient cases to which we, the press, and policymakers tend to pay most attention.[73] Hyman and Franklyn's study of internet-keyword purchases suggests that denizens of the universe of contractual arrangements might be far from faithfully represented by denizens of the universe of litigated disputes.[74] The work of Diamond and Franklyn reminds us that, even within the universe of litigated disputes, the work

70. *See, e.g.*, Cotropia & Gibson, *supra* note 53, at 2016 (reporting relatively high frequencies for copyright litigation involving small firms or "low-IP industries").

71. *See, e.g.*, Diamond & Franklyn, *supra* note 55, at 2062 (reporting empirical evidence that surveys commonly promote settlement of trademark disputes).

72. *See, e.g.*, O'Hara O'Connor & Drahazol, *supra* note 57, at 2180 (discussing evidence that contracting parties often opt to reserve the right to go to court to resolve certain types of disputes).

73. Cotropia & Gibson, *supra* note 53, at 2019; Golden, *supra* note 54, at 2075–78.

74. Hyman & Franklyn, *supra* note 56, at 211819.

product that appears publicly might not give the full flavor of the work product that operates offstage to help generate the settlement or abandonment of conflict.[75]

In short, the Articles in this symposium issue offer a variety of new insights and potential interconnections between them. But in part by helping to undermine prior understandings and intuitions, these studies also highlight the vastness of the remaining unknown. Even after decades of growth, IP studies have far to go before we can even hope for consensus about the proper bounds of evidence-based intellectual property. For the present, we can hope that the Articles in this issue contribute "Steps" toward that end, and we can hope that the Articles' readers are moved to help in the journey.

75. Diamond & Franklyn, *supra* note 55, at 2030–31.

Understanding the Realities of Modern Patent Litigation[1]

John R. Allison,[*] Mark A. Lemley[**] & David L. Schwartz[***]

Sixteen years ago, two of us published the first detailed empirical look at patent litigation. In this Article, we update and expand the earlier study with a new hand-coded data set. We evaluate all substantive decisions rendered by any court in every patent case filed in 2008 and 2009—decisions made between 2009 and 2013. We consider not just patent validity but also infringement and unenforceability. Moreover, we relate the outcomes of those cases to a host of variables, including variables related to the parties, the patents, and the courts in which those cases were litigated. The result is a comprehensive picture of the outcomes of modern patent litigation, one that confirms conventional wisdom in some respects but upends it in others. In particular, we find a surprising amount of continuity in the basic outcomes of patent lawsuits over the past twenty years, despite rather dramatic changes in who brought patent suits during that time.

Sixteen years ago, two of us published the first detailed empirical look at patent litigation.[2] That study provided a wealth of valuable information about patent-validity litigation, including the discovery that nearly half of all patents litigated to judgment were held invalid.[3] But it was also limited in various respects. The study was based only on patent-validity decisions that finally resolved the case on the merits and only on reported decisions

---

1. ©2014 John R. Allison, Mark A. Lemley & David L. Schwartz. We thank David Abrams, Jeremy Bock, Shari Diamond, Stuart Graham, Rose Hagan, Jay Kesan, Naomi Lamoreaux, Arti Rai, Michael Risch, Ted Sichelman, and participants at the *Texas Law Review* Symposium on "Steps Toward Evidence-Based IP," the Works-in-Progress IP Conference at Santa Clara, and the IP2 conference at the Hoover Institution for comments and suggestions. We would like to especially thank Fang Tang for his help with data analysis and statistics and Andrew Thompson for his research assistance.

* Mary John and Ralph Spence Centennial Professor of Business Administration, McCombs Graduate School of Business, The University of Texas at Austin.

** William H. Neukom Professor of Law, Stanford Law School; Partner, Durie Tangri LLP.

*** Associate Professor of Law and Co-Director, Center for Empirical Studies of Intellectual Property, Chicago-Kent College of Law.

2. *See* John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 188–93 (1998) (discussing the existing literature and "lack of empirical evidence on the function and impact of the patent system" at the time).

3. *Id.* at 205.

available in a particular legal reporter.[4] The latter limitation meant that almost half of the decisions were appellate.[5] Importantly, the cases serving as the study's data sources are now on average more than twenty years old.[6]

In this Article we update and expand the earlier study with a new hand-coded data set. We evaluate all substantive decisions rendered by any court in every patent case filed in 2008 and 2009—decisions made between 2009 and 2013. We consider not just patent validity but also infringement and unenforceability. Moreover, we relate the outcomes of those cases to a host of variables, including variables related to the parties, the patents, and the court in which the case was litigated. The result is a comprehensive picture of the outcomes of modern patent litigation, one that confirms conventional wisdom in some respects but upends it in others.

In Part I, we discuss previous efforts to evaluate patent litigation empirically. In Part II, we discuss our methodology and the choices we made in study design. We present our results in Part III.

I. The Prior Art: Efforts to Understand Patent Litigation So Far

A number of scholars have empirically studied specific patent law doctrines. Claim construction is the most common, with most articles focusing on appellate cases.[7] Obviousness has also been a point of

---

4. *See id.* at 194 ("These cases represent all written, final validity decisions by either district courts or the Federal Circuit reported in the *U.S.P.Q.* during an almost eight-year period . . . .").

5. *Id.* at 240.

6. *See id.* at 194 (studying cases decided between 1989 and 1996).

7. *E.g.*, J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 1, 6 (2014) (analyzing claim construction from the Federal Circuit between 2000 and 2011); Gretchen Ann Bender, *Uncertainty and Unpredictability in Patent Litigation: The Time is Ripe for a Consistent Claim Construction Methodology*, 8 J. INTELL. PROP. L. 175, 175 (2001) (noting that the Federal Circuit frequently changes the trial court's claim construction); Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1078–79 (2001) (examining the effects of the Federal Circuit's de novo review of claim construction); Shawn P. Miller, *"Fuzzy" Software Patent Boundaries and High Claim Construction Reversal Rates*, 17 STAN. TECH. L. REV. (forthcoming 2014) (manuscript at 2), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2139146 (determining that the Federal Circuit is more likely to find error in district court constructions of software patents); Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 2 (2001) [hereinafter Moore, *Equipped*] (presenting study results "that show[] that district court judges improperly construe patent claim terms in 33% of the cases appealed to the Federal Circuit"); Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 245–46 (2005) [hereinafter Moore, Markman] (investigating the Federal Circuit's response to *Markman* and finding a higher reversal rate than in her 2001 study); David L. Schwartz, *Courting Specialization: An Empirical Study of Claim Construction Comparing Patent Litigation Before Federal District Courts and the International Trade Commission*, 50 WM. & MARY L. REV. 1699, 1702–04 (2009) [hereinafter Schwartz, *Courting Specialization*] (examining the performance of the U.S. International Trade Commission in patent construction cases); David L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates*

scholarly interest,[8] as have inequitable conduct[9] and the doctrine of equivalents.[10] Although the empirical research into patent litigation just mentioned has largely focused on Federal Circuit decisions,[11] with research employing data from district court litigation typically having been limited to opinions available on Westlaw or Lexis,[12] there have been a few notable exceptions.[13] Unreported decisions, especially denials of summary judgment and the results of jury trials, are lacking from these data sets.[14]

---

in Patent Cases, 107 MICH. L. REV. 223, 224–25 (2008) [hereinafter Schwartz, *Practice Makes Perfect?*] (questioning whether U.S. district court judges improve their patent claim construction decisions with experience); David L. Schwartz, *Pre*-Markman *Reversal Rates*, 43 LOY. L.A. L. REV. 1073, 1075–76 (2010) [hereinafter Schwartz, *Pre*-Markman *Reversal Rates*] (providing data from almost two decades of Federal Circuit opinions to investigate if changes in procedure changed reversal rates).

8. *E.g.*, Christopher A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law*, 82 NOTRE DAME L. REV. 911, 914 (2007) (studying cases decided under the nonobviousness requirement); Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness*, 85 TEXAS L. REV. 2051, 2054–56 (2007) (arguing on the basis of data that the Federal Circuit's doctrine of obviousness "appears relatively stable and increasingly flexible"); Jason Rantanen, *The Federal Circuit's New Obviousness Jurisprudence: An Empirical Study*, 16 STAN. TECH. L. REV. 709, 710–11 (2013) (assessing two prior predictions about obviousness).

9. *E.g.*, Christian E. Mammen, *Controlling the "Plague": Reforming the Doctrine of Inequitable Conduct*, 24 BERKELEY TECH. L.J. 1329, 1331–33 (2009) (reporting data on inequitable conduct allegations and advocating reforms to the doctrine of inequitable conduct); Lee Petherbridge, Jason Rantanen & Ali Mojibi, *The Federal Circuit and Inequitable Conduct: An Empirical Assessment*, 84 S. CAL. L. REV. 1293, 1318–19 (2011) (observing that the Federal Circuit's doctrine of inequitable conduct is stricter than the doctrine as applied by lower courts and other judicial panels); Robert D. Swanson, Comment, *The* Exergen *and* Therasense *Effects*, 66 STAN. L. REV. 695, 717–18 (2014) (finding that inequitable conduct allegations have dropped dramatically in recent years).

10. *E.g.*, John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 STAN. L. REV. 955, 957–58 (2007) (studying the doctrine of equivalents over three time periods and finding that it rarely matters anymore); Lee Petherbridge, *On the Decline of the Doctrine of Equivalents*, 31 CARDOZO L. REV. 1371, 1379 (2010) (confirming the Allison–Lemley findings); David L. Schwartz, *Explaining the Demise of the Doctrine of Equivalents*, 26 BERKELEY TECH. L.J. 1157, 1159 (2011) (arguing that the decline in the doctrine of equivalents resulted from "doctrinal reallocation" and "doctrinal displacement").

11. *See, e.g.*, Chu, *supra* note 7, at 1092 (examining Federal Circuit decisions); Petherbridge et al., *supra* note 9, at 1305 (same); Petherbridge & Wagner, *supra* note 8, at 2071 (same).

12. *See, e.g.*, Moore, *Equipped*, *supra* note 7, at 8 n.36 (indicating that the database of district court opinions was compiled by running Westlaw searches).

13. Several studies have used comprehensive data from U.S. district courts rather than depending on published opinions from Westlaw or Lexis. *See, e.g.*, John R. Allison, Mark A. Lemley & Joshua Walker, *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. PA. L. REV. 1, 3 & n.3 (2009) [hereinafter Allison et al., *Most-Litigated Patents*] (using litigation data from Lex Machina); John R. Allison, Emerson H. Tiller, Samantha Zyontz & Tristan Bligh, *Patent Litigation and the Internet*, 2012 STAN. TECH. L. REV., art. 3, ¶¶ 10–11 (2012) [hereinafter Allison et al., *Patent Litigation*] (using litigation data from Derwent LitAlert database and Lex Machina); John R. Allison, Mark A. Lemley & Joshua Walker, *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 682 & n.21 (2011) [hereinafter Allison et al., *Patent Quality*] (using litigation data from Lex Machina); John R.

Recently, the underlying documents, including motions and opinions, from district court litigation became more readily available. Electronic filing requirements meant that the online filing tool, Public Access to Court Electronic Records (PACER), has a nearly complete collection of litigation documents from patent cases.[15] Some scholars have taken advantage of PACER data to analyze district court decisions.[16] But the raw data provided by the Administrative Office of the United States Courts is notoriously error-prone,[17] and it does a poor job of classifying outcomes.[18]

II. Our Methodology

In this Part, we explain in detail the techniques we used to locate and collect the data. We describe the data sources and provide information about the coders. And we describe our process of selecting data for inclusion in the data set.

A. Data Collection

We used the Lex Machina database as our data source.[19] Lex Machina provides convenient access to cleaned and verified PACER data for district court patent litigation, which permitted us to evaluate all patent lawsuits. Lex Machina data offer three primary benefits. First, it includes all lawsuits, even those without a decision available on Westlaw or Lexis, so

---

Allison, Mark A. Lemley, Kimberly A. Moore & R. Derek Trunkey, *Valuable Patents*, 92 GEO. L.J. 435, 443–45 (2004) [hereinafter Allison et al., *Valuable Patents*] (using litigation data from local court records of individual U.S. district courts).

14. *See, e.g.*, Paul M. Janicke & LiLan Ren, *Who Wins Patent Infringement Cases?*, 34 AIPLA Q.J. 1, 10 (2006) (excluding cases that were finally resolved at the trial court level and not appealed). A notable exception is Moore, *Equipped*, *supra* note 7, at 8, which is limited to appellate decisions but does evaluate both unpublished decisions and even one-word Rule 36 affirmances. Schwartz, *Practice Makes Perfect?*, *supra* note 7, at 238, also evaluates both unpublished decisions and Rule 36 affirmances.

15. For a discussion of PACER coding and its shortcomings, see generally Matthew Sag, *Empirical Studies of Copyright Litigation: Nature of Suit Coding* (Loyola Univ. Chi. Sch. of Law, Pub. Law & Legal Theory, Research Paper No. 2013-017), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2330256.

16. *See, e.g.*, Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 261 (2006) (examining the online docket reports available through the PACER system).

17. *See id.* at 261 tbl.1 (finding a substantial percentage of cases misclassified as patent cases); Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 381 (2000) (eliminating some cases misclassified as patent trials from the data set).

18. *See* Kesan & Ball, *supra* note 16, at 265 (explaining that the Administrative Office of the District Courts' categories for case disposition are "rather ambiguous").

19. LEX MACHINA, http://www.lexmachina.com.

we do not overcount appellate decisions.[20] Second, Lex Machina has cleaned and evaluated the PACER data, eliminating many of the errors in the raw data.[21] Finally, Lex Machina has indexed the cases to identify all summary judgment rulings, trial events, and appeals.[22]

Our study covers all patent lawsuits filed in a federal district court between January 1, 2008 and December 31, 2009. We selected 2008 and 2009 for several reasons. First, those years are sufficiently recent to provide a snapshot of current patent litigation. Second, because the cases were initiated several years ago, the overwhelming majority of those cases were finally resolved or settled before our project began.[23] Lex Machina graciously provided us with a list of 2008 and 2009 lawsuits that contained at least one ruling on summary judgment or trial. Lex Machina furnished us a second list of 2008 and 2009 lawsuits, the second list including cases with an appeal but without a summary judgment ruling or trial. The second list allowed us to capture cases in which the parties stipulated to judgment based upon a claim construction decision with the goal of placing the case in condition for appeal. Both lists provided by Lex Machina included basic information about each lawsuit, including the judicial district in which the case was filed, the identity of the district court judge, and the filing date of the lawsuit.

From the cases provided by Lex Machina, we excluded lawsuits that did not include a complaint for infringement of a utility patent, or declaratory relief of noninfringement or invalidity of a utility patent. Thus, we excluded inventorship and licensing disputes, malpractice actions, and allegations of design or plant patent infringement. After removing these lawsuits, we reviewed the docket report in detail, reading all relevant orders, opinions, motions, verdicts, appellate rulings, and other necessary court documents to code the litigation outcomes.

Because many of the dockets were extremely complicated—it was not uncommon for a patent case to have over 500 docket entries—we felt that student coders would be ill-suited to the task. Coding of outcomes,

---

20. *See Features*, LEX MACHINA, https://lexmachina.com/features/ ("[V]iew all patent case outcomes for a specific judge or district, displayed in easy-to-read charts and graphs supported by interactive case lists.").

21. *See How It Works*, LEX MACHINA, https://lexmachina.com/features/how-it-works/ ("Lex Machina cleans, codes, and tags all data . . . .").

22. *See id.* ("We identify all asserted patents, findings, and outcomes, including any damages awarded. We also build a detailed timeline linking all the briefs, motions, orders, opinions, and other filings for every case.").

23. We conducted the coding in the late summer and fall of 2013. By February 2014, it appears that only 2%–3% of 2008 and 2009 cases were still open. *See* Dennis Crouch, *Pendency of Patent Infringement Litigation*, PATENTLY-O (Feb. 17, 2014), http://patentlyo.com/patent/2014/02/pendency-infringement-litigation.html; *see also* Kesan & Ball, *supra* note 16, at 246 (defending the decision to study cases by year filed rather than by year terminated).

especially in patent cases, is notoriously difficult and time consuming, requiring deep knowledge of patent law and litigation, and the motivation to devote long hours to the task. Consequently, Lemley and Schwartz each personally coded the litigation-outcome information for approximately half of the lawsuits. Both Lemley and Schwartz are experienced patent litigators who understand how to read a docket and appreciate complex litigation rulings. The hand coding was extremely time intensive; it took several hundred hours in the aggregate. To permit an evaluation of the reliability and consistency of the coding, Lemley and Schwartz also overlapped in their coding of approximately ten percent of the lawsuits.[24]

Our study uses a patent–case combination as the unit of analysis. For each case, we coded the outcome separately for each asserted patent. For instance, if the jury returned a verdict on two patents, then we recorded separately what occurred for each patent.[25] For each patent, we also obtained various patent demographic information from Thomson Innovation Solutions, including citations received (or "forward citations"),[26]

---

24. Lemley and Schwartz both initially coded approximately 5% of the cases. Thereafter, they compared results and fine-tuned the codebook. For coding of the remaining cases, Lemley and Schwartz overlapped in 10% of the initial list of cases provided by Lex Machina. Some of the cases provided by Lex Machina turned out to not have relevant merits decisions. After a manual review of the dockets, the 10% overlap resulted in 30 patent–cases with duplicate coding. To increase the amount of overlap and permit the use of statistical tests to report inter-coder reliability, Schwartz additionally coded another random 15% overlap with Lemley, for an additional 46 patent–cases with duplicate coding. We chose "Cohen's Kappa" (*kappa*) as the measure of inter-coder reliability. Mark A. Hall & Ronald F. Wright, *Systematic Content Analysis Of Judicial Opinions*, 96 CALIF. L. REV. 63, 113–14 (2008) (stating that the best practice for evaluating coding reliability is to report an agreement coefficient, such as *kappa*). *Kappa* ranges from 0 to 1, with numbers near 1 indicating a higher degree of reliability. *See id.* (explaining that a 0 indicates "agreement entirely by chance" and a 1 indicates "perfect agreement"). For the basic definitive and interim winners in cases, *kappa* was 0.9534, equating to near perfect agreement. For grants of motions for summary judgment of invalidity and noninfringement, *kappa* was 0.9793, which also equates to near perfect agreement for times in which we both identified motions. However, one of us found 1 additional motion for summary judgment of invalidity (40 v. 39). For motions for summary judgment of noninfringement, we each identified motions that the other did not (42 motions were found by both authors; one found 43 motions, while the other identified 44 motions). We revisited the overlapping case dockets again to understand these additional rulings, and we found that the additionally identified rulings should be included. We corrected all known disagreements in the data set. We believe that these differences in coding are due to the complexity of the dockets, and we do not believe that they are biased in one direction or another. We do believe, however, that the reliability information suggests that we slightly undercounted the numbers of merits rulings, although we cannot be sure whether the actual number should have more denials or grants.

25. Occasionally, the court ruled differently on different claims of a patent. For instance, claim 1 may be infringed and not invalid, but claim 2 was not infringed and anticipated. In these cases, we would create a new record for each group of claims that had a different substantive outcome.

26. Because the number of citations received by a patent in later patents (that treat the earlier patent as prior art) is a moving target, the raw numbers of citations received must be adjusted to account for the varying ages of the patents in our data set. We used a commonly employed

each type of prior art reference, maintenance status, number of claims, number of inventors, geographic location of the inventors, and the assignee when there was one. Allison manually coded for whether the patented invention had a U.S. or foreign origin using a decision model that was based on the domicile of a majority of the inventors and resorting to the domicile of the assignee as a tie breaker in the unusual case in which this was required.[27] We calculated the age of the patents in our data set as of the filing of the current litigation in 2008–2009. Moreover, we also located the first lawsuit in which each patent had been asserted. From the first lawsuit information, we calculated the age of the patent at first lawsuit. We also determined the age of the patents as of the filing of the 2008–2009 lawsuit.

For each patent in a lawsuit, the coders reviewed and captured all rulings on summary judgment relating to a patent law issue. This includes rulings on motions of summary judgment of noninfringement, infringement, validity, invalidity, inequitable conduct, and no inequitable conduct. We excluded rulings on issues that were not patent-specific, such as laches. We also excluded summary judgment rulings on patent law issues if the court did not reach the merits of the issue—such as denials of summary judgment motions—as being premature. The coders also reviewed and recorded all trial outcomes, whether there was a jury or bench trial, and decisions on post-verdict JMOL motions. Finally, we recorded whether an appeal was lodged and how the appeal was resolved. The resolution data includes whether the ruling on the patent was affirmed or reversed on appeal, or whether an appeal is pending or was dismissed (typically because the case settled). When the underlying trial or appellate court opinion lacked sufficient detail to ascertain the basis for the ruling, we read the underlying briefing by the parties.

We coded merits decisions at a low level of granularity. For invalidity, we coded whether the ruling was based on utility, patentable subject matter, section 102 prior art, obviousness, indefiniteness, written

technique suggested by Bronwyn Hall and her colleagues. Bronwyn H. Hall, Adam B. Jaffe & Manuel Trajtenberg, *The NBER Patent-Citations Data File: Lessons, Insights, and Methodological Tools*, *in* PATENTS, CITATIONS, & INNOVATIONS 403, 434–41 (Adam B. Jaffe & Manuel Trajtenberg eds., 2002). The method of adjustment to account for the different ages of patents involves placing each patent in the data set into a cohort of other patents in the data set that were issued during the same year. *Id.* at 437. Thus, each cohort is one year, although cohorts of more than one year could be used if necessary even though that would decrease precision somewhat. The number of forward citations received by each patent is divided by the average number of forward citations received by other patents in the same cohort. *Id.* This gives us the adjusted number of forward citations for that patent in the data set. The process is repeated for every other patent in the same cohort and then repeated for each patent in the other year cohorts. To obtain the adjusted number of forward citations for an entire data set, we then averaged the quantity of adjusted number of forward citations received by all patents in the set.

27. Allison also hand-coded the technology and industry categories for each patent. We report those results in a companion paper.

description, enablement, and best mode. We also coded various bases for section 102 invalidity. For infringement, we captured literal infringement, the doctrine of equivalents, and various types of indirect infringement. And we coded unenforceability as well as the basis for the unenforceability argument. In addition to the separate coding of issues for summary judgment and trial, we also recorded the final resolution for each patent on the issues of infringement, validity, and enforceability.

Notably, we coded the issues litigated to decision, whether or not that decision resulted in a trial outcome or a grant of summary judgment. Thus, if an accused infringer argued that the patent was invalid for lack of patentable subject matter, anticipation, and obviousness, and the court denied the first two arguments but granted the third, each of those three rulings shows up in our data set. To understand how the final resolution variables were coded, one should understand that denial of summary judgment does not result in a final resolution. Instead, denial of summary judgment means that there is an unresolved disputed issue of material fact.[28] Consequently, denials of summary judgment alone would not result in a final ruling in either direction. If, however, the issue had been resolved at trial, then the final ruling was coded as the trial resolution. If summary judgment had been granted on an issue, then the summary judgment ruling was coded as the final resolution in our coding.[29] We coded decisions that finally ruled for a party on an issue as definitive wins, and decisions that ruled for a party but kept the issue alive (largely denial of summary judgment but also remands on appeal) as interim wins.

B. Potential Limitations

Our data set and the implications that can be drawn therefrom are subject to several limitations. For brevity, we discuss two important limitations here.

First, our data set is limited to lawsuits filed in 2008 and 2009. It is sufficiently recent, in our opinion, that the results are generally applicable today. However, there have been several legal changes in the interim that may make lawsuits today different from those in our data set. The most salient changes are the passage of the America Invents Act in 2011;[30] the Federal Circuit's en banc *Therasense*[31] decision in 2011; and three Supreme

28. *See* FED. R. CIV. P. 56.

29. Of course, if the Federal Circuit reversed a ruling relating to a patent on appeal, we updated the final-resolution coding to reflect the appellate decision.

30. Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

31. Therasense, Inc. v. Becton, Dickinson & Co., 649 F.3d 1276 (Fed. Cir. 2011) (en banc).

Court cases involving the doctrine of patentable subject matter in 2010,[32] 2012,[33] and 2013.[34] The Federal Circuit issued several opinions involving patent damages, which may have affected litigant behavior and settlement.[35] These law changes may influence what issues litigants press, and separately, which cases reach the stage of a ruling on the merits. Accordingly, the cases filed today in 2014 may differ from those we studied.

Second and perhaps more importantly, our data set only contains patents which were subject to a ruling on summary judgment, a trial, or an appeal. To be sure, we have the population of cases that resulted in a ruling on a dispositive motion or trial. For these cases, we report statistical results on the outcomes. However, most lawsuits settle,[36] and as our data confirms, most lawsuits settle before any ruling on the merits. Cases that settled before any substantive patent ruling are completely absent from our data set, with the exception of some basic descriptive statistics reported in Table 1. Moreover, many disputes do not result in litigation.[37] Obviously, our data set lacks unlitigated disputes about patents. The upshot is that our data and results are not generalizable to the cases or disputes that settled without any substantive ruling. Thus, while our data sheds light on who wins and loses patent cases and dispositive motions, it cannot tell us who *would* win cases that were filed but settled without a judgment.

We do not even have a sense of which direction the bias, if any, would point if one were interested in all litigated cases. On the one hand, it may be that the cases that are settled before a merits ruling are mainly strong cases in which the parties overlapped in their expectations on success. If this is true, then the defendant win rates we observe in our data set would be higher than the win rate if all cases were litigated to judgment. On the other hand, it could be that the cases that settled before a merits ruling consist disproportionately of meritless cases that were resolved via cost-of-defense settlements.[38] If this alternative hypothesis was true, then our

---

32. Bilski v. Kappos, 130 S. Ct. 3218 (2010).

33. Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289 (2012).

34. Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107 (2013).

35. *See, e.g.*, Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292, 1315 (Fed. Cir. 2011) (prohibiting the use of the 25% rule of thumb for calculating reasonable royalties); ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 873 (Fed. Cir. 2010) (vacating the district court's damages award because the reasonable royalty determination relied on speculative evidence).

36. Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1501 (2001) ("The overwhelming majority of [patent] lawsuits settle or are abandoned before trial.").

37. *See id.* at 1507 (estimating that only 1.5% of patents were litigated).

38. Such claims may be common. *See* Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2163 (2013) (noting that patent trolls pursue a large number of cases, many of which a practicing entity would probably not bring, but that these cases are more likely to settle quickly).

estimates of defendant win rates from the cases that reached the merits phase would be lower than the defendant win rate if all filed cases went to judgment. Because almost all of the settlements are confidential,[39] we cannot assess the direction of the bias. For these reasons, we urge readers to interpret our results with these limitations in mind.

III. Our Results

In this Part, we present some basic descriptive statistics and then draw some lessons from the data.

A. Description of the Patents and Cases

As of the date of our study, there were 949 merits decisions on patents based on infringement lawsuits filed in 2008 and 2009.[40] Those decisions were made in 462 different cases involving 777 different patents. Most of those cases were concentrated in a relatively small number of judicial districts. Leading the way were the Eastern District of Texas and the District of Delaware, two districts perennially favored by plaintiffs.[41] We present the data in Table 1, along with data on where all of the roughly 5,000 lawsuits filed in 2008 and 2009 were filed.

Of the 949 merits decisions, 636 were definitive wins on an issue for one side or the other; the remainder were interim wins (usually the denial of the other side's summary judgment motion). The most common occasions for a merits ruling were summary judgment motions of invalidity (430 observations) and noninfringement (473 observations, increasing to 509 when we added stipulated judgments of noninfringement after claim construction). By contrast, patentees were less likely to seek and obtain a ruling in their favor on summary judgment. Patentees brought and received a ruling on only 125 summary judgment motions on validity[42] and 128

---

39. *See* Scott A. Moss, *Illuminating Secrecy: A New Economic Analysis of Confidential Settlements*, 105 MICH. L. REV. 867, 869 (2007) ("*Public* settlements are the exception, common in only a few types of cases . . . .").

40. We cut off our data collection on June 1, 2013.

41. *See* Mark A. Lemley, *Where to File Your Patent Case*, 38 AIPLA Q.J. 401, 405 & tbl.2 (2010) (finding both districts to be among the most favored for patent lawsuits). Note, however, that because we count only cases with merits decisions, rather than all cases filed, a district's share of cases in our data set may not match their share of filed cases because cases in some districts are more likely to settle than others.

42. Summary judgment of validity differed from the other summary judgment motions we classified. A motion for summary judgment of validity often encompassed one ground for invalidity. For instance, the patent holder may move for summary judgment of no anticipation. Even if the motion was granted, it would not preclude an accused infringer from contesting the validity on a different basis, such as lack of enablement. Thus, even a successful patent holder on a motion for summary judgment of validity did not necessarily prevail on all invalidity defenses.

summary judgment motions on infringement. They also brought 116 summary judgment motions of no inequitable conduct which resulted in a ruling on the merits. Accused infringers only brought 24 summary judgment motions of inequitable conduct, and none was successful.

Of our 949 merits observations, 290 patents went to trial. Over 70% (206 patents) were heard by juries, with the remainder (84) decided in bench trials. A total of 273 of the 949 merits decisions reached a Federal Circuit decision on appeal, though another 126 merits decisions were appealed and then settled before decision. There are presently 82 merits decisions pending before the Federal Circuit.

Table 1: 2008–2009 Patent Lawsuit Filings

District	% of Merits Decisions in Our Database (#)	% of Lawsuits in Our Database (#)	% of 2008–2009 Lawsuit Filings (#)
TXED	13.5% (128)	13.0% (60)	10.4% (524)
DED	12.9% (122)	10.6% (49)	7.8% (394)
CAND	8.5% (81)	7.4% (34)	6.5% (325)
CACD	5.9% (56)	7.6% (35)	9.0% (454)
CASD	5.3% (51)	5.0% (23)	2.7% (138)
NYSD	5.0% (47)	3.2% (15)	4.3% (216)
ILND	4.2% (40)	4.1% (19)	5.5% (275)
NJD	3.6% (34)	5.0% (23)	6.0% (302)
WIWD	3.2% (30)	3.2% (15)	1.3% (65)
VAED	3.2% (30)	2.6% (12)	2.2% (112)
MAD	2.8% (27)	4.8% (22)	2.2% (108)
TXSD	2.3% (22)	1.5% (7)	1.3% (67)
OHND	1.8% (17)	1.9% (9)	1.8% (89)
All Other Districts	27.8% (264)	30.1% (139)	39.0% (1960)

For summary judgment of invalidity, noninfringement, infringement, inequitable conduct, and no inequitable conduct, the winner of the motion completely resolved the issue in the case.

The columns in Table 1 require some interpretation before being compared with each other. The second column from the left, providing the percentage of merits decisions, is done on a per patent–case basis, as our data is broken down in this manner. A single case may involve multiple patents. The third column from the left collapses our data on merits decisions into a per lawsuit basis, which permits easier comparison with the data on raw lawsuit filings. The far right column utilizes Lex Machina's raw data on case filings, which is done on a per case basis. While the patent–case and case bases differ, a comparison is useful to see basic trends.

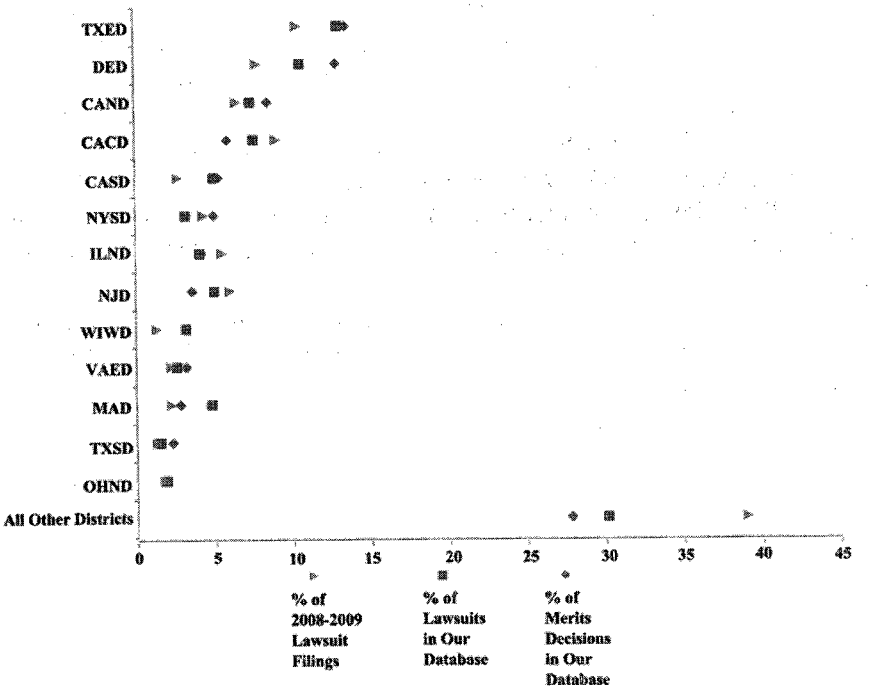
First, less than 10% of the patent lawsuits filed in 2008 and 2009 (462 of 5,029) resulted in any merits decision.[43] In other words, more than 90% of lawsuits settle before the court resolves summary judgment or tries the case.[44]

Second, as shown graphically in Figure 1 below, the identity of the districts with the most merits decisions loosely tracks the identity of the districts with the most filings.

43. The percentage is slightly understated because some of the filed lawsuits are still pending and may reach a merits decision after the date of our coding. But there is reason to believe that is true of no more than 2%–3% of cases filed in 2008 and 2009. *See* Crouch, *supra* note 23 (finding that approximately 97% of lawsuits filed in 2008 and 2009 were terminated in district courts by 2013).

44. Kesan & Ball, *supra* note 16, at 271, showed that a relatively large percentage (7%–8%) of summary judgments were being granted in their data set.

Figure 1: 2008–2009 Patent Lawsuit Filings and Merits Decisions by District



However, some districts, such as the Eastern District of Texas, Southern District of California, and the Western District of Wisconsin, appear overrepresented in merits decisions relative to filings. The Western District of Wisconsin, for instance, is known as a "rocket docket,"[45] which may provide less time for the parties to settle. Other districts, such as the Central District of California, appear underrepresented. The Central District of California has a large number of district court judges—like the Northern District of Illinois, another venue underrepresented in merits decisions—and also has a long average case pendency.[46] Longer pendency may increase the possibility of settlement before a merits decision.

45. Saurabh Vishnubhakat, *Reconceiving the Patent Rocket Docket: An Empirical Study of Infringement Litigation 1985–2010*, 11 JOHN MARSHALL REV. INTELL. PROP. L. 58, 61 (2011).

46. The median case in the Central District of California went to trial in 955 days. LEX MACHINA, https://law.lexmachina.com/court/cacd. By comparison, the median case in the Western District of Wisconsin went to trial in 588 days. LEX MACHINA, https://law.lexmachina.com/court/wiwd.

B. *The Realities of Patent Litigation*

In this subpart, we draw a number of lessons from our results—both the descriptive statistics and our multivariate regression analysis.

1. The Nature of Validity Challenges Is Changing.—In our 1998 study, we found that decided validity challenges were overwhelmingly based on obviousness—so much so that even though obviousness challenges had one of the lowest win rates, they were also responsible for the largest number of judicial patent invalidations.[47] Prior art challenges were close behind.[48] And what section 112 challenges we found were almost entirely enablement- or best-mode-based.[49]

Things have changed. While there are still a sizeable number of adjudicated obviousness challenges (149 summary judgment motions decided), there were fewer decisions on summary judgment motions of obviousness than of anticipation (154). There are a growing number of decisions based on patentable subject matter (26)—a category of minor importance in the 1998 study.[50] We suspect that if we reviewed lawsuits filed even more recently—such as those filed in 2010 and 2011—the number of summary judgment motions on patentable subject matter would have substantially increased. Recent Supreme Court and Federal Circuit case law likely encouraged more litigation on the doctrine.[51] And the single largest category of adjudicated challenges was for indefiniteness (176), a validity doctrine that barely registered in the 1998 study.[52]

We attribute the growth of indefiniteness challenges to two factors. First, a major portion of the decisions in our data set involve software patents,[53] and the Federal Circuit in the 2000s developed a doctrine that

---

47. Allison & Lemley, *supra* note 2, at 209 tbl.2.

48. *Id.*

49. *See id.* (finding 29 decisions invalidating patents on enablement, written description, and best mode grounds, while only 8 decisions invalidated patents on claim indefiniteness grounds).

50. *Id.*

51. *See, e.g.*, Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1295–97 (2012) (holding that a method of administering thiopurine drugs in the treatment of autoimmune diseases was excluded from patentability because the method essentially "set forth laws of nature" and did not do enough to add to natural processes so as to warrant patentability); Bilski v. Kappos, 130 S. Ct. 3218, 3231 (2010) (holding that a hedging strategy was based on too abstract a concept to be a patentable process); CLS Bank Int'l v. Alice Corp. Pty., 717 F.3d 1269, 1274 (Fed. Cir. 2013) (en banc), *cert. granted*, 134 S. Ct. 734 (2013) (holding that the asserted method, computer-readable medium, and system claims of the defendant's patents were invalid for failure to recite patent-eligible subject matter).

52. *See* Allison & Lemley, *supra* note 2, at 208 tbl.1 (finding that indefiniteness was the grounds for invalidity in only 8 cases).

53. Over one-third of the merits decisions in our study concerned software patents (339 of 949). We discuss technology- and industry-specific results in a subsequent paper.

applied indefiniteness to software means-plus-function claims with more force than elsewhere.[54] While that likely led to more indefiniteness challenges in software cases, those challenges apparently were not all that successful, perhaps because fewer and fewer claims are written in means plus function format. Second, indefiniteness is a pure question of law that is normally decided in connection with claim construction[55] because the defendant's argument is that the claim term is not capable of being construed.[56] Claim construction itself was rare in our 1998 paper.[57] That study only included data through 1996,[58] the same year *Markman*[59] was decided. Today, however, claim construction is the most likely form of substantive ruling in a patent case because it is a prerequisite to virtually any type of summary judgment motion on validity or infringement.[60]

---

54. *See* Function Media, L.L.C. v. Google Inc., 708 F.3d 1310, 1318 (Fed. Cir. 2013) (noting that "[w]hen dealing with a 'special purpose computer-implemented means-plus-function limitation,'" disclosure of the algorithm for performing the function is required); ePlus, Inc. v. Lawson Software, Inc., 700 F.3d 509, 518 (Fed. Cir. 2012) (concluding that the specification at issue did "not disclose sufficient structure for the 'means for processing' limitation"); Noah Sys., Inc. v. Intuit Inc., 675 F.3d 1302, 1313 (Fed. Cir. 2012) (distinguishing between cases where a software patent specification "discloses no algorithm" and those where an algorithm is disclosed but still may be "inadequate"); Ergo Licensing, LLC v. CareFusion 303, Inc., 673 F.3d 1361, 1365 (Fed. Cir. 2012) (explaining that "[i]t is only in the rare circumstances where any general-purpose computer without any special programing can perform the function that an algorithm need not be disclosed," and requiring that such disclosure demonstrate the "step-by-step process" for arriving at a given result); Typhoon Touch Techs., Inc. v. Dell, Inc., 659 F.3d 1376, 1384–86 (Fed. Cir. 2011) (holding that while means-plus-function software claims required disclosure of corresponding structure performing that function in the specification, that structure did not need to be described in the form of software code); *In re* Aoyama, 656 F.3d 1293, 1294, 1297–98 (Fed. Cir. 2011) (holding a means-plus-function software patent claim invalid as indefinite for failure to disclose the corresponding algorithm performing that function); Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1337–38 (Fed. Cir. 2008) (requiring algorithm disclosure and indicating that the standard is whether "a person of ordinary skill in the art would not recognize the patent as disclosing any algorithm at all"); WMS Gaming Inc. v. Int'l Game Tech., 184 F.3d 1339, 1349 (Fed. Cir. 1999) ("[T]he disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm."). For further discussion on functional claiming, see generally Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905.

55. *See, e.g.*, Teva Pharms. USA, Inc. v. Sandoz, Inc., 723 F.3d 1363, 1368, 1373 (Fed. Cir. 2013), *cert. granted*, 134 S. Ct. 1761 (2014) (addressing questions of definiteness and claim construction and noting that both are questions of law).

56. *See* Peter S. Menell, Matthew D. Powers & Steven C. Carlson, *Patent Claim Construction: A Modern Synthesis and Structured Framework*, 25 BERKELEY TECH. L.J. 711, 772 (2010) ("When a claim cannot be construed, it is indefinite, and therefore invalid. Some authority suggests that all indefiniteness issues boil down to an issue of claim construction.").

57. *See* Allison & Lemley, *supra* note 2, at 208 tbl.1.

58. *Id.* at 194.

59. Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996).

60. *Markman* requires courts to decide claim construction as a matter of law. *Id.* at 372. "This process is usually conducted during the pretrial stage in a '*Markman* hearing,' where the judge determines the scope of the patent at issue." Jay P. Kesan & Gwendolyn G. Ball, *Judicial*

Because courts often decide indefiniteness issues while construing claims, they are likely to see more indefiniteness motions than other forms of invalidity issues. Cases that settle after claim construction, for instance, never reach the merits of other arguments but will decide indefiniteness.[61] Notably, however, software patents are not statistically significantly more likely to be found indefinite than others.[62]

It appears that the indefiniteness doctrine plays a larger role than previously recognized in patent law. Remarkably, the rise of indefiniteness motions occurred despite Federal Circuit hostility to the doctrine. The Federal Circuit has made it very difficult to prevail on indefiniteness outside of software means-plus-function claims; a claim is indefinite under current law only if it is "insolubly ambiguous."[63] The Supreme Court granted certiorari in January 2014 in an indefiniteness case[64] and seems poised to broaden the doctrine considerably. If it does, indefiniteness may play an even larger role in patent litigation in the near future.

2. Individual Validity Challenges Lose.—The courts ruled on validity in a large number of cases, mostly on summary judgment. Most of those motions failed. Table 2 reports the success rates of summary judgment motions of invalidity, both overall and by specific issue.

Overall, accused infringers won only 31% of the invalidity challenges brought on summary judgment.[65] For many of the most common sorts of challenges, the win rate was even lower. Patentees defeated summary judgment motions based on prior art, obviousness, and section 112 more

---

Experience and the Efficiency and Accuracy of Patent Adjudication: An Empirical Analysis of the Case for a Specialized Patent Trial Court, 24 HARV. J.L. & TECH. 393, 415 (2011). "If there are no remaining issues of material fact . . . a case can be resolved on summary judgment or quickly settled as the possible outcomes become more predictable." *Id.* Thus, claim construction may well be the only substantive ruling in a given case.

61. Notably, the fact that indefiniteness is decided during claim construction means that we may actually undercount the number of indefiniteness motions. Not all indefiniteness motions or rulings are styled "summary judgment;" some rulings on indefiniteness may evade our view because they are buried inside an order that purports to be only about claim construction. While we have done our best to identify all such cases, we cannot guarantee that we have them all. So, if anything, our numbers understate the growth in the importance of indefiniteness.

62. We will discuss industry- and technology-specific results in a separate, forthcoming paper.

63. Teva Pharms. USA, Inc. v. Sandoz, Inc., 723 F.3d 1363, 1368 (Fed. Cir. 2013), *cert. granted*, 134 S. Ct. 1761 (2014) (quoting Biosig Instruments, Inc. v. Nautilus, Inc., 715 F.3d 891, 898 (Fed. Cir. 2013), *cert. granted*, 134 S. Ct. 896 (2014)).

64. Nautilus, Inc. v. Biosig Instruments, Inc., 134 S. Ct. 896 (2014).

65. Unless otherwise noted in the paper, we treated split rulings as separate observations. *See supra* note 25. As a robustness check, we also calculated the summary judgment success rate on invalidity by reweighting these split rulings to normalize all observations on a patent in a case to one. Using this metric, the invalidity rate was still 31%.

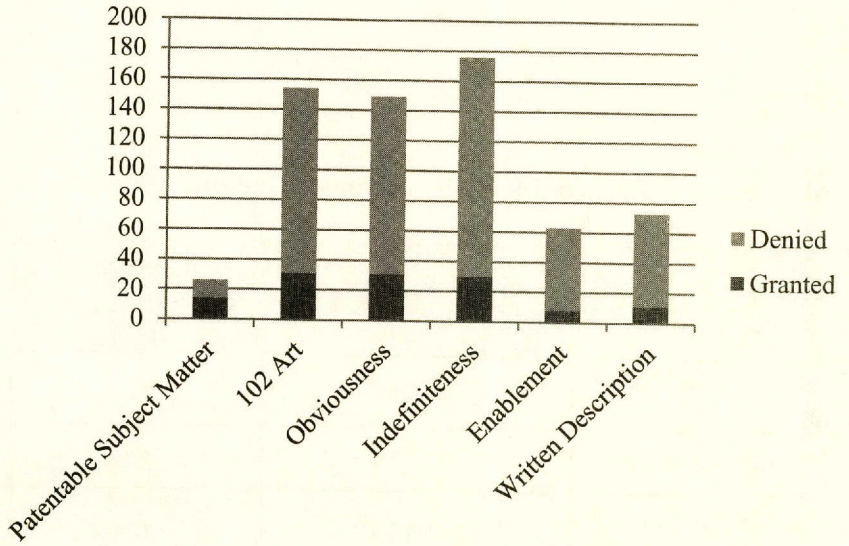
than four times in five. Notably, patentable subject matter motions were the only ones to prevail a majority of the time (14 of 26, or 54%, were successful).

Table 2: Success Rates of Invalidity Summary Judgment Motions[66]

Grounds for Summary Judgment	Number of Successful Motions/Total	Percentage of Successful Motions
No Patentable Subject Matter	14/26	54%
Section 102: Prior Art	31/154	20%
Section 103: Obviousness	31/149	20%
Section 112: Indefiniteness	30/176	17%
Section 112: Lack of Enablement	8/63	13%
Section 112: Inadequate Written Description	11/73	15%
Overall	131/430	30%

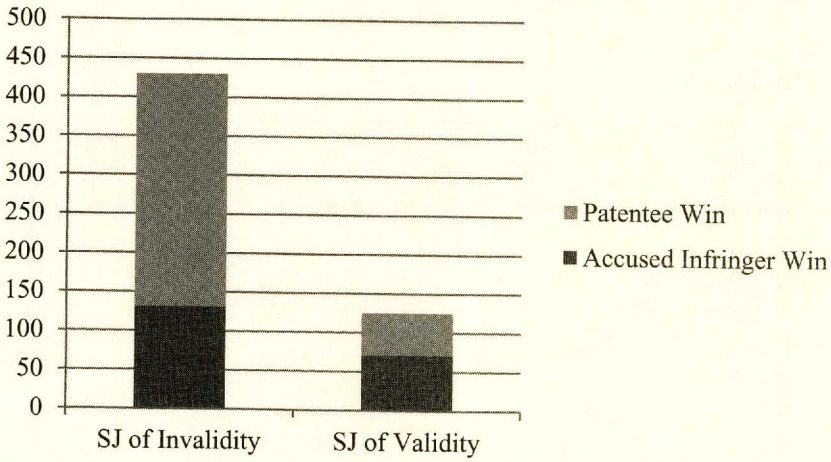
66. The numbers of individual challenges do not add to the total because some motions were brought on multiple grounds. The numbers of successful challenges do not add to the total because a few successful motions were brought on grounds not listed here, like utility or inventorship.

Figure 2: Successs Rates on Invalidity Summary Judgment Motions



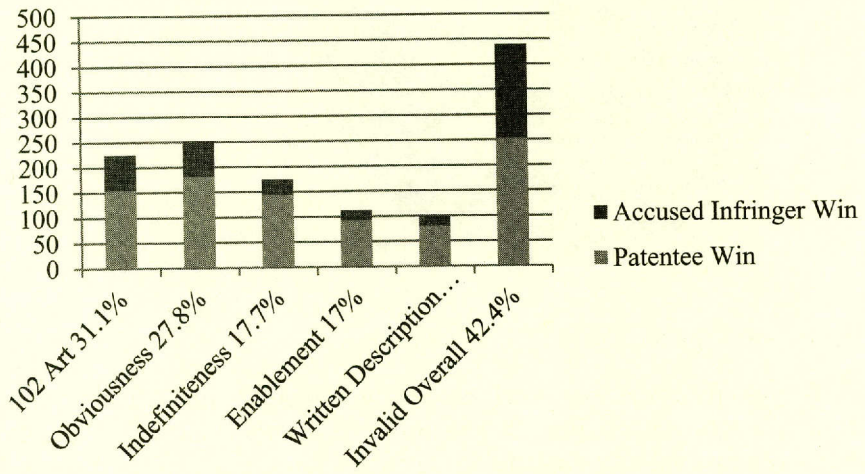
Patentees were much less likely to obtain summary judgment of validity, as Figure 3 shows.

Figure 3: Overall Results on Summary Judgment of Validity



The fact that most individual validity challenges fail is true not just of summary judgment rulings, but also of overall final decisions on validity. Figure 4 shows the overall win rate for validity across all procedural postures.

Figure 4: Overall Invalidity Win Rates

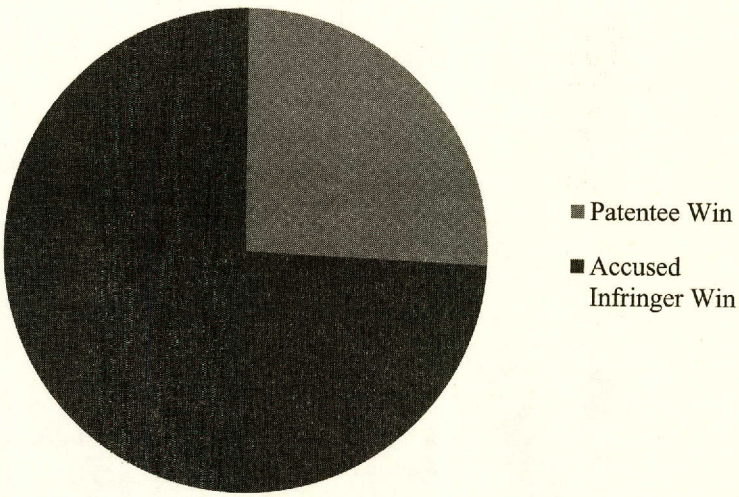


3. Overall, Challengers Win.—Notwithstanding our finding that most individual validity challenges fail, the overall picture for patentees is considerably darker. Patentees won only 164 of the 636 definitive merits rulings, or 26%.[67] Notably, that number is essentially unchanged from Paul Janicke and LiLan Ren's study nearly a decade ago,[68] despite substantial changes in the nature of patent plaintiffs in that decade.

67. As a robustness check, we also calculated the definitive-merits-ruling win rate by reweighting the split patents. Using this alternative metric, patentees still only won 26% of the rulings.

68. *See* Janicke & Ren, *supra* note 14, at 5 (finding that patentees won 25% of cases).

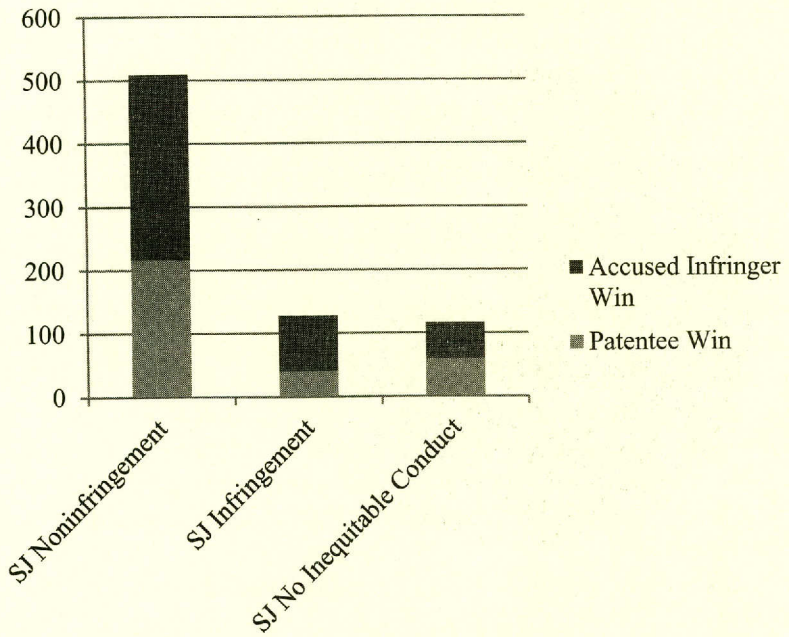
Figure 5: Overall Patentee Win Rate



Why do patentees lose nearly three-quarters of the time when the court definitively resolves the merits? The answer is twofold. First, while courts turn away most validity challenges, patentees do not fare as well when it comes to infringement. Accused infringers won 54% (256 of 473) of their summary judgment motions alleging noninfringement of individual patents.[69] That number rises to 57% (292 of 509) when we include stipulated judgments of noninfringement after claim construction, which are functionally equivalent to summary judgments of noninfringement; the patentee concedes that it cannot win under a particular claim construction in order to tee the case up for appeal.

69. As a robustness check, we also calculated the summary judgment win rate on noninfringement by reweighting the split patents. Accused infringers won 53% of their summary judgment rulings using that metric.

Figure 6: Summary Judgments of Infringement



Second, the nature of patent litigation requires patentees to win every issue before the court. A patentee who defeats five of six invalidity challenges, only to lose the sixth, loses the case.[70] So does a patentee who wins on validity and inequitable conduct but loses on infringement.[71] One of us has referred to this as the "fractioning" of patent law.[72] Our data suggest that it has a significant effect on patent cases overall because many of our cases had motions on multiple issues, and those motions were not always decided in favor of the same party. In patent law, a split decision is almost always a decision for the accused infringer, not the patentee.

The summary judgment process exacerbates the fractioning. Summary judgment in most areas of law is predominantly used by defendants,[73] and patent law is no exception. Patentees brought fewer decided motions for summary judgment of infringement (128) than accused infringers did

70. *See* Mark A. Lemley, *The Fractioning of Patent Law*, *in* INTELLECTUAL PROPERTY AND THE COMMON LAW 504, 509 (Shyamkrishna Balganesh ed., 2013) (describing validity doctrines as having a "patentee-must-win-everything characteristic").

71. *See id.* at 508 (noting that a patentee must win both invalidity and infringement).

72. *Id.* at 504.

73. Joe S. Cecil et al., *A Quarter-Century of Summary Judgment Practice in Six Federal District Courts*, 4 J. EMPIRICAL LEGAL STUD. 861, 886 (2007) ("Defendants' motions for summary judgment are far more common than plaintiffs' motions.").

seeking noninfringement (473). Accused infringers prevailed on 257 of the decided summary judgment motions of noninfringement, a success rate of 54%. When stipulated judgments of noninfringement are included, accused infringers received favorable pretrial judgments of noninfringement in 316 of 509 instances, a success rate of 62%.[74] By contrast, patentees won less than a third of their motions for summary judgment of infringement (41 of 128, or 32%). The patentee's burden to be entitled to summary judgment of infringement is higher than the burden on accused infringers for noninfringement. A patentee must show a lack of disputed issues of material fact for *all* elements of the claimed invention, while the accused infringers merely need to show a lack of disputed issues of material fact for *any* element of the claimed invention.[75]

Furthermore, because the defendant only needs to prevail on one defense, it can move on one or more bases for summary judgment.[76] Even if unsuccessful, the accused infringer has another chance to win the case at trial.[77] In contrast, the patentee must both survive summary judgment and prevail at trial.[78] Thus, the accused infringers have several bites at the proverbial apple.

If a case reached the trial stage, patentees fared much better. Overall, patentees won 60.7% of the trials, which included prevailing on 59.4% of patents decided by juries and 63.9% of patents decided by the bench. And it bears repeating that many cases are settled after a denial of summary judgment and before trial. These patents are not included in our statistics on definitive rulings, and many presumably involve a monetary payment to the patentee. These selection issues should be taken into account when considering the statistic that accused infringers win approximately three quarters of the patents that end with a definitive ruling. Patentees often get paid even without a definitive ruling.

4. Where You Stand Depends on Where You Sit.—Both patentees and accused infringers engage in forum shopping, filing suit in the district court

---

74. A patent owner may sometimes stipulate that, if the court construes a disputed claim term in a particular way, there will be no infringement. If the court construes the claim term unfavorably to the patent owner, the result is a judgment of noninfringement in the same manner as though the decision had been in response to a motion for summary judgment of noninfringement.

75. Lemley, *supra* note 70, at 506.

76. *See id.*

77. *See* Morton Denlow, *Summary Judgment: Boon or Burden?*, 37 JUDGES' J., Summer 1998, at 26, 27 ("[A] defendant who brings and loses a summary judgment motion lives to fight another day. The losing plaintiff, however, loses not only the battle, but also the war.").

78. *See id.* (explaining that a plaintiff must attempt to win the summary judgment decision "just to ensure his case goes forward").

they believe is likely to be most favorable to their claim.[79] Our multivariate regression analysis of the merits decisions indicates that several districts are correlated with higher win rates for one side or the other—either overall or on various issues—even after we control for the characteristics of the patents, the patentees, the technology, and the industry.[80] We report the effects of district on overall win rates in Tables 3A and 3B.[81]

The two districts with the most patent cases—the Eastern District of

---

79. *See* Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 79 N.C. L. REV. 889, 920–23 (2001) (comparing forum shopping by infringers in declaratory judgment actions with that of patentees in infringement cases).

80. We used logistic regression (or logit) models, because each of our dependent variables (specific outcomes) is binary (or "dummy"—"yes" or "no"). Although multivariate regression usually assumes that all variables are independent of one another, this assumption does not hold when applied to studies of patent-infringement litigation. There are several reasons for this: (1) many cases involve the assertion of multiple patents, and decisions about these patents are made by the same judge and jury; (2) it is common to find in a data set that the same patent has been litigated in more than one separate lawsuit against different defendants, and even though the decision makers may be different, the same patent has the same attributes in each case; and (3) some cases will be consolidated, with the same decision maker deciding certain issues—usually only pretrial summary judgments, but sometimes trial decisions as well. Allison & Lemley, *supra* note 2, at 245; Allison et al., *Patent Quality*, *supra* note 13, at 678–79; Kesan & Ball, *supra* note 16, at 261. To account for the lack of complete independence among observations, we clustered on the standard errors of the unique patent numbers.

81. In addition to addressing the problem caused by lack of complete independence among our observations, we also had to contend with the fact that when running multiple tests from the same data set, there is the problem that we might obtain one or more findings of statistical significance by pure chance. Of the various techniques that have been proposed for correcting this problem, we decided that the use of bootstrapping would best serve our needs. To correct for any possible false significance findings (false discovery rate) resulting from doing multiple tests from the same data set, we used a bootstrapping procedure when running the logistic regressions on the various merits decisions. This procedure consisted of first resampling the original data to construct fifty samples with the original size. Thus, we had 949 observations, and from that we took a random sample of 949 fifty different times. Each random sample from the original 949 observations is clearly *not* identical to the original 949 observation sample because of the randomness of the samples—randomness will miss some of the observations and duplicate others. We then ran the logistic regression on the first random sample and generated a coefficient, standard error, and p-value. Random sample 1 was then added to the original data set of 949 observations. Then, random sample 2 was taken, another logistic regression was run on this second sample, and a second coefficient was generated, along with a standard error and p-value. Random sample 2 was then added back into the set consisting of the original 949 observations plus the first random sample. This process was repeated a total of fifty times. Finally, we averaged the fifty coefficients and derived a final standard error and p-value. Note that we clustered on the standard errors of the unique patent numbers when running each of the fifty logistic regressions. Also, the combination of bootstrapping and standard-error clustering was employed for each regression model—there was a separate regression model for each of the merits outcomes. We were required to do separate logits on each merits outcome, and could not combine all of these outcomes into a single multinomial regression model because the different outcomes possible for each patent were not independent of one another. *See generally* Joseph P. Romano et al., *Control of the False Discovery Rate Under Dependence Using the Bootstrap and Subsampling*, 17 TEST 417 (2008) (discussing the merits of the bootstrap method to control for a false discovery rate while testing s null hypotheses simultaneously).

Texas and the District of Delaware—were both significantly more likely to rule for the patentee in the cases we studied than were the "non-busy" patent districts.[82] So too was the Southern District of New York. By contrast, only one district was significantly less likely to rule for patentees—the Central District of California.[83]

Our results are largely but not completely consistent with prior work on district-specific variation in outcomes.[84] While prior papers have found some differences in district outcomes, some of them were testing different questions. Mark Lemley, Jamie Kendall, and Clint Martin, for instance, tested only trial outcomes, not all case outcomes.[85] And while those studies used multivariate regressions, each included different variables.[86] Our findings represent results from a number of multivariate regressions that account for of all of the other independent variables in our study. We show results for ten of the major outcomes across some of the top districts in Tables 3A and 3B. All of these outcomes have large enough observations for the percentage rates to be meaningful. Moreover, a test comparing the percentage rates across districts showed that the differences were highly significant among districts for all of the ten outcomes—the significance level for nine of the ten outcomes across districts was <0.01.[87] These differences are striking. Forum shopping, it seems, can pay dividends for cases that reach merits decisions.

It is important to keep in mind, however, that the regression results we report show correlations and are not proof of causation. The success of patentees in any particular district may be a function of the quality of cases brought in that district rather than any particular pro- or anti-patent sentiment.[88] For instance, it is possible that the weaker the patent

82. The omitted districts in this analysis are all districts other than the top thirteen. These other districts were combined into one category for measurement.

83. It is also notable that the Central District of California had fewer merits decisions than most other busy districts, but we have not tested for a relationship between the two.

84. *See, e.g.*, Mark A. Lemley, Su Li & Jennifer M. Urban, *Does Familiarity Breed Contempt Among Judges Deciding Patent Cases?*, 66 STAN. L. REV. (forthcoming 2014) (manuscript at 23) (determining that Delaware courts are more likely to rule for patentees); Mark A. Lemley, Jamie Kendall & Clint Martin, *Rush to Judgment? Trial Length and Outcomes in Patent Cases*, 41 AIPLA Q.J. 169, 185 (2013) (finding no significant differences by district in trial results).

85. *See* Lemley, Kendall & Martin, *supra* note 84, at 172.

86. *See* Lemley, Li & Urban, *supra* note 84 (manuscript at 15–16) (selecting dependent and independent variables); Lemley, Kendall & Martin, *supra* note 84, at 176 n.19 (describing the authors' decision not to include other variables of possible interest).

87. For the other outcome—Invalidity at any stage based on Section 102 prior art—the differences in rates among districts was significant at 0.017, very close to the <0.01 of the other nine outcomes.

88. *See* Lemley, Kendall & Martin, *supra* note 84, at 184–85 (finding that the evidence "does not support the conclusion that the district in which a case is litigated significantly affects the likelihood that the jury will find for the patentee").

infringement claim, the more likely an accused infringer is to seek declaratory relief. Separately, it is possible that stronger cases are brought in certain districts. We cannot rule out these possibilities.

Table 3A: Ten Major Outcomes by District

	TX ED	DE D	CA ND	CA CD	CA SD	NY SD	IL ND	WI WD
% Win Rates by District; X = No Observations								
Patentee Definitive Winner	45	33	15	5	20	54	5	32
SJ Invalid Any	18	22	44	59	18	31	56	17
SJ No infr + stip. jdg no infr	45	64	64	64	54	64	41	75
Patentee Trial Win	72	49	50	83	55	100	20	88
Invalidity-All—Any Stage	23	40	68	63	60	25	50	18
Invalidity-102 Prior Art—Any Stage	17	23	44	63	55	20	67	0
Invalidity-103 Obvious—Any Stage	25	23	50	43	73	0	25	20
Invalidity-112 In-definiteness—Any Stage	15	20	40	67	0	0	25	0
Invalidity-112 En-ablement & Writ-ten Descr. —Any Stage	0	32	20	100	57	0	67	0
Total Direct In-fringement—All Stages	48	42	10	12	48	77	29	29

Table 3B: Ten Major Outcomes by District (cont.)

	NJ D	MA D	VA ED	OH ND	TX SD	All Other Dist.	Overall
% Win Rates by District; X = No Observations							
Patentee Definitive Winner	17	0	19	25	33	19	26
SJ Invalid Any	39	13	19	0	11	40	31
SJ No infr + stip. jdg no infr	56	53	65	0	91	58	57
Patentee Trial Win	27	0	43	50	60	71	61
Invalidity-All—Any Stage	60	64	60	0	24	53	42
Invalidity-102 Prior Art—Any Stage	14	43	22	0	27	41	31
Invalidity-103 Obvious—Any Stage	29	71	13	0	0	42	30
Invalidity-112 Indefiniteness—Any Stage	X	0	38	0	8	31	18
Invalidity-112 Enablement & Written Descr.—Any Stage	80	57	100	0	0	6	22
Total Direct Infringement—All Stages	27	23	29	25	50	34	36

Table 4: Definitive Win Rate by District—Multivariate (Logit) Regression Results[89]

District	Patent Owner Definitive Winner
TX ED	**1.252*** (0.331)**
DE D	**0.745**** (0.337)
CA ND	–0.316 (0.426)
CA CD	**–1.532**** (0.607)
CA SD	0.0522 (0.551)
NY SD	**1.593*** (0.493)**
IL ND	**–1.557*** (0.599)**
WI WD	0.685 (0.481)
NJ D	–0.12 (0.617)
MA D	X
VA ED	–0.00844 (0.59)
OH ND	0.34 (0.781)
TX SD	0.745* (0.386)
N	620
Standard Errors in Parentheses	
* $p<0.1$; ** $p<0.05$; *** $p<0.01$	
X = District omitted because of too few observations, excessive collinearity, or lack of randomness among observations	

89. Because we performed quite a few separate logistic regression tests using the same data set, there is a chance of deriving a finding of statistical significance by pure chance, which is often referred to as the false discovery rate problem (false positive finding of significance). As noted above, we used a bootstrapping methodology to minimize this risk. *See supra* note 81. In the table above, the districts are the independent variables and the specific outcome—Definitive Winner—is the dependent variable.

5. Diversification Works.—Modern patent litigation is often about more than enforcing a single patent.[90] A significant fraction of the cases in our study involved decisions on more than one patent. Notably, we find that cases in our study that evaluated more than one patent were significantly more likely to rule for the patentee, both in final outcome and in interim decisions. Notably, our finding is not merely that patentees who litigate multiple cases are more likely to win on at least one of them, but that the fact that a court rules on multiple patents is associated with an increased patentee win rate on each patent.

In addition to prevailing more overall, patentees also fared better on validity issues in multi-patent decisions. Specifically, patentees were significantly more likely to be granted summary judgment on a validity issue on a particular patent when the court ruled on multiple patents. It is possible that redundancy or diversification works, increasing the chances that the patentee will prevail on each patent. Here, the fractioning of patent law may work in favor of patentees. If a patentee prevails on a single patent in a lawsuit involving multiple patents, the patentee is entitled to damages and possibly an injunction.[91] In fact, the damages may be the same for infringement on a single patent and infringement of multiple, related patents.[92] Alternatively, it is possible that causation works the other way, and that patentees with stronger inventions are more likely to obtain and assert multiple patents and take the case to judgment. That said, there may be multiple selection effects that contribute to these results, including the fact that the number of patents asserted may affect how parties decide to move for judgment and how courts evaluate those motions, so we urge caution in interpreting this result.

6. Foreign Inventors Do Just Fine.—A number of studies have sought to evaluate whether the U.S. patent system is biased against foreigners,[93] as

---

90. *See* Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 27 (2005) (proposing that the real value of patents lies in their aggregation into portfolios).

91. *See* John M. Golden, *Principles for Patent Remedies*, 88 TEXAS L. REV. 505, 514 (2010) (noting that injunctions are a "standard remedy for patent infringement," and even when such injunctions "are unavailable, a patent owner may recover money damages").

92. This Article utilizes each patent in a lawsuit as the unit of observation. Future work includes transforming the unit of observation to each lawsuit and performing similar empirical analysis. Analyzing the data using the lawsuit as the unit of observation may shed more light on litigation involving multiple patents.

93. *See* Kimberly A. Moore, *Xenophobia in American Courts*, 97 NW. U. L. REV. 1497, 1504 (2003) (finding that juries in patent trials are biased against foreign parties); *cf.* Kevin M. Clermont & Theodore Eisenberg, Commentary, *Xenophilia in American Courts*, 109 HARV. L. REV. 1120, 1122–23 (1996) (finding that foreign parties are more likely to prevail in federal civil actions).

a number of foreign companies suspect.[94] In this study, we look not at the location of the litigants, but at the domicile of the inventors themselves. We define a patent as being of foreign origin if a majority of its inventors were domiciled outside the United States; that is, we emphasize the geographic origin of the underlying *invention*, not its owner.[95] There were 146 foreign-origin inventions out of 777 patents litigated to a merits decision in our study. 98 of those 146 patents were filed first in a foreign country, but not always in the country where the invention originated. The correlation between foreign-origin invention and foreign-priority-filing country was 0.72, which is high but not extremely high. Patents on only five foreign-origin inventions were filed first in the European Patent Office (EPO).

How did those foreign-origin patents fare in litigation? We find a very strong result: patents of foreign origin in our study were much more likely to prevail in court in a merits decision than those issued to domestic inventors. In addition to being more likely to prevail overall, foreign-inventor patents were less likely to be held invalid, less likely to be held invalid on summary judgment, and less likely to be found obvious.

This result was frankly surprising to us. It may suggest that there is no bias against foreign inventors, though it may be driven in full or in part by selection effects. Kimberly Moore found that foreign litigants were much less likely to enforce their patents in the U.S. courts, suggesting that foreign litigants might be selecting only their best patents for suit.[96] While we investigate foreign inventors and not necessarily foreign owners, the two are likely to be correlated, and a similar effect might be at work here. It is also possible that the entity size or status of plaintiffs that assert foreign-invented patents differs systematically from domestic ones. If non-practicing entities primarily assert U.S. patents, for instance, and if those entities are more likely to lose, those facts may explain our results. We intend to test this hypothesis in subsequent work.

94. Moore, *supra* note 93, at 1497–98.

95. In the unusual case in which there was an equal split between the number of U.S. and non-U.S. inventors, the domicile of the assignee was used as a tiebreaker. There were no cases in which there were an equal number of U.S. and foreign inventors without there also being an assignee to break the tie.

96. Moore, *supra* note 93, at 1505.

7. It's Good to Go First.—Plaintiffs traditionally go first in litigation and get the last word as well. There is some reason to think that confers an advantage in general in litigation.[97]

That seems to be true in patent law as well. Consistent with prior work,[98] we find that accused infringers who sue for declaratory judgment fare substantially better than other accused infringers in cases that reach a merits decision. They are more likely to win overall, more likely to establish that the patent is invalid, and more likely to win their invalidity argument on summary judgment. Notably, while declaratory judgment allows accused infringers rather than patentees to pick the forum, and we found above that some fora are more favorable to patentees than others, this result is independent of the district-specific effects. That is, the benefit that declaratory judgment plaintiffs get is not simply a function of their ability to have their case heard in a more favorable forum.

Again, however, we encourage the reader not to read too much into this result. Selection effects may be at work. It is possible, for instance, that accused infringers (or their counsel) who file declaratory judgments are more sophisticated than those who just wait to be sued. That greater sophistication may translate into greater win rates. Correspondingly, patentees who actually send threat letters that can trigger declaratory relief may be less sophisticated than others; experienced patent lawyers can generally avoid creating declaratory judgment jurisdiction.[99] We cannot test the quality of counsel on either side, but it is a possible explanation for these results.

8. Patent Characteristics Don't Seem to Matter Much.—Our final finding is quite surprising—the observable characteristics of the patents don't seem to have much, if any, bearing on the outcome of the cases

---

97. For general arguments that going first is an advantage in litigation, see, for example, Shari Seidman Diamond et al., *Juror Reactions to Attorneys at Trial*, 87 J. CRIM. L. & CRIMINOLOGY 17, 27 (1996). Bernard Chao is studying this effect experimentally. E-mail from Bernard Chao, Assistant Professor of Law, Univ. of Denver Sturm Coll. of Law (Apr. 22, 2014, 1:17 PM) (acknowledging that Chao, along with John Campbell, Chris Robertson, and David Yokum, is conducting a study tentatively titled *Assessing the Substantive Effects of Declaratory Judgment Actions in Patent Litigation*).

98. *See* Moore, *supra* note 79, at 920–93 (finding that when accused infringers choose the forum, such as through a declaratory judgment action, the infringer "is much more likely to win"); Kimberly A. Moore, *Jury Demands: Who's Asking?*, 17 BERKELEY TECH. L.J. 847, 859–61 (2002) ("Accused infringers generally bring declaratory judgment actions when they believe they have a strong case on the merits.").

99. *See* Kristin Johnson Doyle, *Patent Demand Letters: Avoiding Declaratory Judgment Jurisdiction—Part 2 of 2*, INTELL. PROP. TODAY (Feb. 2010), http://www.iptoday.com/issues/2010/02/patent-demand-letters-avoiding-declaratory-judgment-jurisdiction-part-2-2.asp ("[U]se of smart strategies when dealing with alleged infringers may serve to shield the patent owner from declaratory judgment jurisdiction.").

involving those patents. Neither the number of adjusted citations received[100] nor the number of prior art references have any significant correlation to overall win rates, validity, or infringement outcomes. Citations seem to tell us nothing about whether patents are valid or whether they are likely to be infringed. That is remarkable given how much effort economists have spent measuring the value of innovation by patent citation counts.[101]

More generally, it is notable how little explanatory power the group of independent variables in our model has. The pseudo R^2 is a measure in logit regression of how much power the independent variables together have in explaining a dependent variable. Stated somewhat differently, it estimates how well the model (group of independent variables) fits the data. The pseudo R^2s in our regressions reported in Table 5 for ten major outcomes are very low, revealing that most of the variation in patent litigation outcomes is not predictable, at least based upon the extensive variables we captured.[102] In other work we consider some variables not present here, including industry and technology area.[103] While there are significant differences in patent-litigation outcomes by industry and technology, even including those variables does not explain most of the differences in patent-litigation outcomes. The characteristics of individual lawyers, clients, and judges seem to matter quite a bit. We think that is as it should be.

---

100. For an explanation of the adjustment process, see *supra* note 26.

101. *See, e.g.*, David S. Abrams, *Did TRIPS Spur Innovation? An Analysis of Patent Duration and Incentives to Innovate*, 157 U. PA. L. REV. 1613, 1616 n.9 (2009) (citing numerous articles assessing patent value by citation count).

102. This contrasts with Michael J. Mazzeo, Jonathan Hillel & Samantha Zyontz, *Explaining the "Unpredictable": An Empirical Analysis of U.S. Patent Infringement Awards*, 35 INT'L REV. L. & ECON. 58, 67 (2013), which finds that damages (as opposed to liability rulings) are predictable based on some simple variables.

103. *See* John R. Allison, Mark A. Lemley & David L. Schwartz, PowerPoint: Differences in Patent Litigation Outcomes by Technology and Industry (2014) (on file with authors).

Table 5: Explanatory Power of Patent Characteristics[104]

Pseudo R^2		
Outcome (each is a dependent variable in a logistic regression model)	**Pseudo *R*-Squareds for each model (outcome)**	***N* for each model (outcome)**
Patentee Definitive Winner	0.145	636
SJ Invalid Any	0.0569	426
SJ No infr + stip. jdg no infr	0.0123	509
Patentee Trial Win	0.0510	290
Invalidity-All—Any Stage	0.0876	439
Invalidity-102 Prior Art—Any Stage	0.0624	231
Invalidity-103 Obvious—Any Stage	0.133	258
Invalidity-112 Indefiniteness—Any Stage	0.171	175
Invalidity-112 Enablement & Written Descr.—Any Stage	0.171	137
Total Direct Infringement—All Stages	0.152	530

Conclusion

The overall picture painted by our data is complex. In many ways, patent litigation is rather different than it was when we conducted our original study. The top districts for patent litigation—the Eastern District of Texas and the District of Delaware—were not nearly as important twenty years ago. The *Markman* hearing did not exist in our original study.[105] Patent assertion entities (referred to by some as "patent trolls") were a minor feature of patent litigation in the 1990s.[106] And the most successful

104. This particular set of regressions also included six technology areas—mechanical, electronics, chemistry, biotechnology, software, and optics, but the pseudo R^2's were at the same very low levels for regressions run with only the eight patent characteristics, and run in several other ways.

105. *Markman* was not decided until the final year of our study, so its effect on our data was insignificant. Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996); *see* Allison & Lemley, *supra* note 2, at 194 (stating that the authors used data "from early 1989 through 1996").

106. *See* Sara Jeruss, Robin Feldman & Joshua Walker, *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 DUKE L. & TECH. REV. 357, 358–62 (2012)

validity challenges today—patentable subject matter and indefiniteness—were virtually unknown twenty years ago.[107]

At the same time, many of our results will sound familiar to experienced students of the patent system. Ten years ago, Janicke and Ren found that patentees won only 25% of decided cases;[108] we find that number virtually unchanged today.[109] Forty-six percent of patents whose validity was decided in the 1990s were held invalid;[110] today the invalidation rate is 43%. Much has changed about patent law, but the overall dynamics of patent litigation—in which patentees win at trial but not on summary judgment, and in which patentees win each individual issue but lose overall—remain remarkably similar to the patent litigation we studied twenty years ago.

(reporting an increase in patent-monotization-entity suits in the last decade). *But cf.* Christopher A. Cotropia, Jay P. Kesan & David L. Schwartz, *Unpacking Patent Assertion Entities*, 99 MINN. L. REV. (forthcoming 2014) (finding that nearly all of the supposed increase in patent assertion entity litigation from 2010 to 2012 is explained by the joinder provisions of the America Invents Act; Cotropia et al. bypothesize that large increases occurred prior to 2010).

107. *See* Allison & Lemley, *supra* note 2, at 208 (finding that, of the 138 patents held invalid in the study population, only 1 was held invalid on patentable subject matter grounds, and only 8 were held invalid on indefiniteness grounds).

108. Janicke & Ren, *supra* note 14, at 5.

109. The continuity may be even greater than that. Matthew Henry and John Turner study patent litigation going back to 2009, and find with two exceptions the patentee's overall odds of winning hover between 27% and 29%. Matthew D. Henry & John L. Turner, Across Five Eras: Patent Enforcement in the United States 1929-2006, at 4 (June 2013) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2274383.

110. Allison & Lemley, *supra* note 2, at 205.

* * *

The (Still) Shaky Foundations of Trade Secret Law

Robert G. Bone*

Introduction

Trade secret law is an odd member of the intellectual property family. It protects secrecy when its closest cousin, patent law, values public disclosure.[1] Its liability rules focus on the method of appropriation when other intellectual property (IP) theories focus on the appropriation itself.[2] These and other differences raise the question whether trade secret law actually makes sense as an independent body of law protecting information. In an article published about fifteen years ago, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, I argued that it does not.[3] In particular, I concluded that there is no convincing normative basis for an independent body of trade secret law distinct from other legal theories, such as contract.

Much has happened in the past fifteen years. Trade secrecy continues to be an important IP strategy for many firms, and concerns about trade secret theft, and especially international espionage, have increased.[4] The

---

* G. Rollie White Professor of Law, The University of Texas School of Law. I wish to thank the participants in the "Steps Toward Evidence-Based IP" Symposium for input on an earlier draft. I am especially grateful to Eric Claeys, Mark Lemley, Michael Risch, Pam Samuelson, and David Schwartz for their helpful comments and to Kelsey Pfleger for her excellent research assistance.

1. An inventor must publicly disclose her invention as a condition to obtaining a patent. 35 U.S.C. § 112(a) (2012).

2. *See* 1 MELVIN F. JAGER, TRADE SECRETS LAW § 3.11, at 3-49 (2010) (noting that "unlike a patent owner, a person who possesses a trade secret does not have an exclusive right to the information").

3. Robert G. Bone, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, 86 CALIF. L. REV. 241 (1998) [hereinafter Bone, *A New Look*]; *cf.* Robert G. Bone, *Exploring the Boundaries of Competitive Secrecy: An Essay on the Limits of Trade Secret Law*, *in* LAW, INFORMATION AND INFORMATION TECHNOLOGY 99 (Eli Lederman & Ron Shapira eds., 2001) (critically examining trade secrecy's limits in light of IP policies); Robert G. Bone, *Trade Secrecy, Innovation and the Requirement of Reasonable Secrecy Precautions*, *in* THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH 46 (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., 2011) [hereinafter Bone, *Trade Secrecy*] (critically analyzing the case for requiring secrecy precautions).

4. *See* John E. Jankowski, *Business Use of Intellectual Property Protection Documented in NSF Survey*, NAT'L SCI. FOUND. (Feb. 2012), http://www.nsf.gov/statistics/ infbrief/nsf12307/nsf12307.pdf (reporting results from a NSF survey showing heavy reliance on trade secrecy in some industries); *Trends in Proprietary Information Loss: Survey Report*, ASIS INT'L 1–3 (June 2007), https://foundation.asisonline.org/FoundationResearch/Publications/Documents/trendsinproprietaryinformationloss.pdf (discussing the threat U.S. businesses face from foreign countries).

volume of trade secret litigation has also grown,[5] and public enforcement of trade secret rights is stronger today than it was fifteen years ago.[6] Thus, the question I addressed in 1998 is at least as, if not more, pressing today.

The literature on trade secret law has also grown over this same period, and numerous scholars have come to its defense.[7] This symposium provides an opportunity for me to revisit my arguments in light of this literature. I have learned much from this work. But it does not convince me that broad legal protection for trade secrets is justifiable. I remain skeptical that there is a normative basis for a freestanding trade secret law that is not parasitic on other legal norms.

The relationship of this Article to the symposium topic might not be obvious, but it is significant. My claim is not that special protection for trade secrets is clearly undesirable. Instead, I claim that the only way protection could be desirable is if its social benefits exceed its social costs and that we lack the empirical evidence necessary to make this determination with a sufficient level of confidence. This raises a deeper question, one directly related to the symposium topic: How should we respond when a body of law is justified, if at all, only on consequentialist grounds and there is insufficient empirical evidence to make reliable predictions about consequences?

The body of this Article is divided into three parts. Part I sets the stage by briefly describing trade secret law and sketching the main points in my 1998 article. Part II focuses on work published since 1998 and critically examines the arguments advanced by trade secrecy supporters. Part III then explores the question of how best to handle the problem of limited empirics in general and in the context of trade secret law.

---

5. *See* David S. Almeling et al., *A Statistical Analysis of Trade Secret Litigation in Federal Courts*, 45 GONZ. L. REV. 291, 293 (2009–2010) [hereinafter Almeling et al., *Federal Courts*] (reporting that published trade secret cases in federal court have grown "exponentially," doubling between 1988 and 1995 and again between 1995 and 2004); David S. Almeling et al., *A Statistical Analysis of Trade Secret Litigation in State Courts*, 46 GONZ. L. REV. 57, 61 (2010–2011) [hereinafter Almeling et al., *State Courts*] (reporting that published trade secret cases in state courts have grown at a linear rate).

6. For example, the federal government has stepped up enforcement of the Economic Espionage Act, *see* Thomas P. O'Brien & John J. O'Kane IV, *Heightened Enforcement Environment Signals Increased Use of Economic Espionage Act*, 84 Pat. Trademark & Copyright J. (BNA) 208, 208 (June 1, 2012) (noting that recent cases brought under the Economic Espionage Act "signal that federal efforts to ramp up intellecutal property protection are continuing to grow"), and the International Trade Commission has claimed broad powers to block infringing imports that incorporate misappropriated trade secrets, *see* TianRui Grp. Co. v. Int'l Trade Comm'n, 661 F.3d 1322, 1326–27 (Fed. Cir. 2011) (holding that section 337 applies extraterritorially to authorize the International Trade Commission to block imports that were produced using domestic trade secrets misappropriated abroad).

7. It is worth noting that I am not the only one who recommends confining trade secret law mostly to contract. *See* Thornton Robison, *The Confidence Game: An Approach to the Law About Trade Secrets*, 25 ARIZ. L. REV. 347, 383–84 (1983) (proposing that trade secret protection be based on contract in employer–employee settings).

I. Background

As background for the rest of the Article, subpart A below summarizes the basics of trade secret doctrine, and subpart B sketches my original arguments briefly.

A. Overview of Trade Secret Law

Trade secret law developed in the middle of the nineteenth century as a branch of the common law, and it remained a common law tort until the National Conference of Commissioners on Uniform State Laws promulgated the Uniform Trade Secrets Act (UTSA) in 1980.[8] Since then, roughly forty-seven states have adopted some version of the UTSA, leaving the rest to follow the common law.[9]

Despite some variations in doctrinal specifics, the basic features of trade secret law are fairly uniform across states. First, the information must qualify as a trade secret. To do so, it has to satisfy three requirements: (1) the information must be secret; (2) it must derive economic value as a result of being kept secret; and (3) it must be the subject of reasonable efforts to maintain its secrecy.[10]

Second, the defendant must have acquired, used, or disclosed the trade secret information by breaching a duty of confidence, violating an independent legal norm, or using some other "improper means" that falls short of "generally accepted standards of commercial morality and reasonable conduct."[11] Most trade secret cases fall into the first category; indeed, the vast majority involve preexisting employment or business relationships that support a duty of confidence.[12] Some cases fall into the

---

8. UNIF. TRADE SECRETS ACT (amended 1985), 14 U.L.A. 529 (2005). *See generally* 1 ROGER M. MILGRIM & ERIC E. BENSEN, MILGRIM ON TRADE SECRETS § 1.01[2] (2013) (discussing the UTSA).

9. MILGRIM & BENSEN, *supra* note 8, § 1.01[2][b]. The federal Economic Espionage Act, adopted in 1996, provides federal criminal protection for trade secrets. 18 U.S.C. §§ 1831–1832 (2012). Some states have also enacted statutes criminalizing trade secret theft. 3 MILGRIM & BENSEN, *supra* note 8, § 12.06(1). But civil remedies are mostly a matter of state law.

10. *See, e.g.*, UNIF. TRADE SECRETS ACT § 1(4); ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 37 (6th ed. 2012).

11. RESTATEMENT (FIRST) OF TORTS § 757 cmt. f (1939); *see, e.g.*, E.I. duPont deNemours & Co. v. Christopher, 431 F.2d 1012, 1017 (5th Cir. 1970) (holding that aerial photography was an "improper method" of obtaining a trade secret).

12. One study of published federal court decisions between 1950 and 2008 found that "in over 85% of cases, the alleged misappropriator was either an employee or business partner," and a parallel study of state court decisions found that the comparable figure was 93%. Almeling et al., *Federal Courts*, *supra* note 5, at 302–03; Almeling et al., *State Courts*, *supra* note 5, at 59–60; *see also* JAMES POOLEY, TRADE SECRETS § 5.01(2)(a) (2013) ("Most trade secret lawsuits involve employees allegedly using their former employer's secrets to benefit themselves or a competitor."). For example, an existing or a departing employee is liable if he discloses his employer's trade secret to a competitor in breach of a confidentiality duty imposed by the

second category, such as those in which a stranger steals a trade secret by burglarizing a firm, hacking a computer, defrauding an employee, or committing some other independently wrongful act. Not many published cases fall into the third category.[13] One of the most famous is *E.I. duPont deNemours & Co. v. Christopher*,[14] involving surreptitious aerial surveillance of a factory.[15] Finally, it is important to note in particular that both reverse engineering and independent discovery are perfectly lawful ways to learn a trade secret. Neither counts as an improper means.[16]

As for remedies, all states permit injunctive relief.[17] Monetary relief is available too.[18] This includes plaintiff's loss from the misappropriation or defendant's profit, whichever is greater.[19] Trade secret owners can also obtain recovery in the amount of a reasonable royalty, especially in UTSA jurisdictions.[20] And punitive damages and attorney's fees are sometimes awarded as well.[21]

B. A Brief Sketch of My 1998 Argument

In 1998, I argued that there was no convincing justification for an independent body of trade secret law. It is important at the outset to be clear about the nature of this argument. It focuses on the source of policy justification for legally protecting trade secrets. My point is that whatever policies support trade secret law must come from other bodies of law. For example, when trade secret law imposes liability for breach of a contractual duty of confidence, the policy reasons for doing so are simply those that support contract enforcement more generally. There are no special reasons that apply just because information or a secret is involved. Defenders of trade secret law argue that protection is justified because it promotes incentives to create, prevents a wasteful precautions–stealing arms race, protects the trade secret owner's privacy right, enforces the conventional

---

employment contract or by the nature of the employee's activities. So too, a new employer is liable if it uses the trade secret when it knew or should have known that the employee disclosed the information improperly. Moreover, a prospective licensee who learns the information in the course of an unsuccessful negotiation is liable if it then uses the trade secret in violation of an express or implied nondisclosure agreement or in breach of a confidentiality duty imposed by law.

13. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 355 n.6 (2003) (noting that "[w]e have not discovered any cases that are like *Christopher* in the sense of finding misappropriation despite the absence of either a breach of contract or a violation of a common law tort").

14. 431 F.2d 1012 (5th Cir. 1970).

15. *Id.* at 1012.

16. 1A MILGRIM & BENSEN, *supra* note 8, § 7.02[1][a].

17. *See* 4 *id.* § 15.02 (listing examples of trade secret remedies available in each state).

18. 4 *id.* § 15.02[3].

19. *Id.*

20. *Id.*

21. *Id.* § 15.02[3][i], [3][k].

morality of the marketplace, and so on. My claim is that reasons of this kind do not convincingly justify an independent body of trade secret law and that as a result trade secrecy is parasitic at the normative level on policies that support other legal norms.

This does not necessarily mean, however, that the actual legal rules in the cognate field should be applied strictly. For example, if a trade secret is protected on the ground of contract breach, it does not necessarily mean that existing contract rules should be applied just as they are in any other breach of contract case. The policy reasons for enforcing contracts might call for special rules, such as broader availability of specific performance, when the subject of the agreement is secret information. But in that case the reasons are contract law reasons, not special reasons distinctive to trade secret law.[22]

The following discussion briefly summarizes my criticism of the conventional arguments for trade secret law.

1. Economic Arguments.—There are two main economic arguments for protecting trade secrets. The first focuses on incentives to create. The second focuses on reducing the costly arms race that arises when increasing investments in secrecy precautions prompt ever more sophisticated acquisition methods.

a. Incentives to Create.—At best, it is uncertain whether trade secret law generates incentive benefits that exceed its costs.[23] In particular, as far as patentable inventions are concerned, adding trade secret protection is likely to upset the balance of benefits and costs created by the Patent Act by diverting inventions away from the patent system[24] and undermining the

22. At one point in my 1998 article, I suggested that the tort of intentional interference with contractual or commercial advantage might be used to extend liability to third parties. Bone, *A New Look*, *supra* note 3, at 303 & n.279. Some have objected on doctrinal grounds, arguing that the precise legal requirements of the tort would not be satisfied in most trade secret cases. *See, e.g.*, Michael Risch, *Why Do We Have Trade Secrets?*, 11 MARQ. INTELL. PROP. L. REV. 1, 50 n.235 (2007) (pointing to specific requirements of interference with contract that are not likely to be met in trade secret misappropriation cases). Whether or not this is true as a legal matter, it is tangential to my point. If the policies that support imposing liability for intentional interference also support a broader application of the tort to trade secret cases, then the tort should be expanded in that way. Again, my point is about the policies, not about the specific rules.

23. Bone, *A New Look*, *supra* note 3, at 264–70.

24. It is well understood that firms, especially in certain industries, favor trade secret law over patent even for clearly patentable inventions when those inventions are difficult to reverse engineer. *See, e.g.*, Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as IP Rights*, 61 STAN. L. REV. 311, 339–40 & n.121 (2008) (citing an empirical study to support the argument that some companies prefer trade secret protection for inventions that are "not transparent to the world"); Jankowski, *supra* note 4, at 2 (reporting results of a NSF survey showing heavier reliance on trade secrecy than on patent in some industries).

beneficial effects of patent exclusivity in limiting duplicative efforts to invent the same invention.[25]

As for nonpatentable inventions, the marginal impact of trade secret protection on incentives might not be as large as it seems at first glance because a firm's *ex ante* research and development (R&D) investment decisions will take account of the expected value of all possible outcomes, patentable and nonpatentable alike, and this aggregate calculation should dilute the significance of the nonpatentable component.[26] Moreover, trade secret protection impedes the diffusion of information and thus retards further innovation. I suggested that trade secret law might be appropriate for intermediate research results and nontechnological information, but that even this much is uncertain.[27]

b. Limiting the Arms Race and Facilitating Licensing.—Many commentators argue that without trade secret law firms would employ costly measures to protect their secrets from disclosure.[28] In fact, the trade secret owner and the appropriator are locked in a strategic precaution–stealing game: as the owner increases its investment in precautions, the appropriator increases its investment in stealing the secret, which then prompts the owner to increase precautions even further to counter the more serious threat, and so on.[29] Since investments on both sides cancel out, an escalating arms race like this is socially wasteful. Trade secret law prevents or greatly reduces the waste by giving firms a litigation alternative to self-help and by deterring appropriators.

There are two serious problems with this argument. First, a firm must detect misappropriation before it can bring a trade secret suit, and trade secret misappropriation is especially difficult to detect.[30] Moreover,

---

25. If one firm keeps an invention secret, others can do so as well if they later invent the same invention. Professor Lemley responds to my point about duplicative research investments by arguing that races do not just produce duplication; they also speed up innovation and sometimes reap collateral benefits from incidental discoveries. *Lemley*, *supra* note 24, at 341 n.126. He also argues that the patent system probably incentivizes even more duplication than trade secret law because it grants stronger rights to the winner of the race. *Id.* I am skeptical that the collateral innovation benefits of duplicative research efforts justify the cost, but the question is ultimately an empirical one. More generally, Lemley misses my point. I am not concerned so much about the costs of the innovation race. I am concerned about the costs of duplicative research after the race is over. Patent law cuts off the race once there is a winner; trade secret law allows it to continue by encouraging secrecy rather than public disclosure and tolerating independent discovery.

26. Bone, *A New Look*, *supra* note 3, at 267–68.

27. *Id.* at 270–72.

28. *E.g.*, Risch, *supra* note 22, at 43–44; *see* Douglas Lichtman, *How the Law Responds to Self-Help*, 1 J.L. ECON. & POL'Y 215, 232 (2005) (discussing the arms race arguments).

29. Bone, *A New Look*, *supra* note 3, at 272–78.

30. *See, e.g.*, MICHAEL J. TREBILCOCK, THE COMMON LAW OF RESTRAINT OF TRADE: A LEGAL AND ECONOMIC ANALYSIS 11–12, 140 (1986) (noting the "quite severe" costs of monitoring compliance by employees with contractual covenants restraining disclosure); Ian C.

recognizing a trade secret claim creates a new type of arms race: the trade secret owner invests in detection; the appropriator then invests in efforts to avoid detection; the owner responds by using more sophisticated detection methods, and so on.[31] Thus, even if trade secret law limits the precaution-stealing arms race, it adds a new detection–avoidance arms race.

Second, trade secret lawsuits are costly for trade secret owners.[32] The litigation itself is costly, especially as fuzzy and open-ended liability standards furnish lots of opportunities for strategic adversarialism.[33] Moreover, a trade secret owner always must worry about the risk that its secret will leak during litigation, even with the safeguards of a protective order. It should not be surprising then that some trade secret owners rely on self-help despite the litigation alternative and that some eschew litigation altogether.[34]

Another argument for trade secret law focuses on its beneficial effect in channeling acquisition efforts away from socially costly misappropriation and toward presumably less costly licensing. In my 1998 article, I argued that these benefits might not be as large as commonly supposed because the transaction costs of licensing trade secrets are also high.[35]

2. Moral.—Courts and commentators who defend trade secret law on moral grounds frequently invoke privacy rights, veil-of-ignorance arguments, and conventional morality. I discussed these moral justifications in my 1998 article and concluded that all of them have serious problems.

Privacy rights fail for two main reasons. First, the typical owners of trade secrets are corporations, and corporations do not possess the attributes of personal autonomy and the capacity for personal relationships necessary to trigger a deontological privacy right.[36] Second, the typical subject matter

---

Ballon, *Alternative Corporate Responses to Internet Data Theft*, *in* 17TH ANNUAL INSTITUTE ON COMPUTER LAW 737, 740 (1997) (stressing the detection problems with computer data theft); James H.A. Pooley et al., *Understanding the Economic Espionage Act of 1996*, 5 TEX. INTELL. PROP. L.J. 177, 224 (1997) (noting that "[i]nformation loss is inherently difficult to detect").

31. *See* Bone, *A New Look*, *supra* note 3, at 276–77 (describing the "detection game" in which one company attempts to detect theft and its competitor tries to avoid detection).

32. *Id.* at 278–79.

33. *See* AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY 2013, at 34–36 (2013), *available at* http://library.constantcontact.com/download/get/file/1109295819134-177/AIPLA+2013+Survey_Press_Summary+pages.pdf (reporting survey results showing that trade secret litigation costs on average $425,000 for suits worth less than a million dollars up to $2,950,000 for suits worth more than 25 million dollars, compared to patent litigation for which the comparable figures are $700,000 and $5,500,000, respectively).

34. *See* Bone, *A New Look*, *supra* note 3, at 278 (noting that the cost of trying trade secret cases discourages companies from bringing suits).

35. *Id.* at 280–81.

36. *Id.* at 284–88.

of trade secrets is not the sort of intimate information that justifies a moral claim to privacy.[37]

Veil-of-ignorance arguments are also highly problematic.[38] This type of argument imagines a hypothetical bargaining situation in which the bargaining agents are deprived of specific information about the firms they represent. The idea is to create bargainers who, because they lack self-interested motivation, will choose principles and rules that have moral force.[39] The main problem with using this argument has to do with justifying the information structure of the bargaining situation. Bargaining agents cannot be deprived of so much information that actual firms in the real world have no reason to accept the results as fitting the salient features of the institution being regulated. I argued in 1998 that this condition is not satisfied by the contractarian arguments of trade secret defenders and that it is unlikely to be satisfied by any contractarian argument for trade secrecy.[40]

Finally, justifying trade secrecy as enforcing the conventional morality of the marketplace fails as well.[41] Even if moral conventionalism makes sense in general, it is unclear how one is supposed to tell whether particular marketplace norms qualify as sufficiently accepted. There is no empirical evidence that competing firms would adopt the norms of trade secret law without being compelled to do so.[42] Moreover, to be generally accepted in the absence of legal sanction, a norm must be part of a social equilibrium supported by informal sanctions.[43] In that case, however, it is unclear what is accomplished by adding trade secret law. And adding trade secret law might even make matters worse by upsetting the existing equilibrium.

II. The Recent Scholarship on Trade Secret Law

The following discussion examines more recent efforts to defend trade secrecy, some of which were developed partly in response to my 1998 article. Before proceeding, however, it is important to address the significance of legal classification to the justification problem. Some scholars have tried to defend trade secret law by arguing that it fits a well-

37. *Id.* at 288–89.

38. *See id.* at 289–94 (outlining problems with the contractarian justification of trade secret law).

39. *See generally* JOHN RAWLS, A THEORY OF JUSTICE 17–22 (rev. ed. 1999) (describing the concept of the "original position").

40. Bone, *A New Look*, *supra* note 3, at 289–94. I do not mean that all firms must actually accept the bargaining result after the veil is lifted. I mean that the result must be something that they have good reason to accept (or at least not reject). For this condition to hold in the case of trade secret law, the information structure of the bargaining situation must fit the core features of market competition. But those features include informed self-interested choice. *Id.* at 294; *see also infra* notes 87–89 and accompanying text (further elaborating this point).

41. Bone, *A New Look*, *supra* note 3, at 289–94.

42. *See id.* at 296.

43. *Id.* at 295.

accepted legal category. For example, Professor Mark Lemley argues that trade secrecy is properly understood as a type of intellectual property right because it serves IP policies.[44] I address these policy arguments below, but Professor Lemley's claim seems to go beyond policy. He suggests that the fact of classification itself has significance.[45] In particular, he assumes that confusion about trade secret's normative foundations stems historically from confusion about its proper common law classification—as property, contract, or tort—and therefore that slotting it into the intellectual property category should clear things up.[46]

Lemley is correct that courts and commentators have had difficulty identifying the proper legal classification for trade secrecy, and he does a nice job of recounting the struggle to fit it into tort, contract, or property.[47] But I do not agree that confusion about classification is what produced confusion about justification. In fact, the causal direction is the other way around: confusion about justification is what produced confusion about legal classification. Fitting trade secret law into the IP category can be useful in focusing attention on IP policies, but in the end what matters is not the legal category but the persuasiveness of the underlying policy arguments.[48]

The policy arguments for trade secrecy published since 1998 can be divided into three categories: (1) those that focus on reevaluating the social cost–benefit balance, (2) those that focus on bolstering moral arguments,

---

44. Lemley, *supra* note 24, at 329 (arguing that trade secrecy serves the same functions as other IP rights: "promot[ing] inventive activity," and "promot[ing] disclosure of those inventions").

45. *See id.* at 341 (arguing that "thinking about trade secrets as IP rights can help us to improve the doctrine itself" and that "the articulation of a solid theoretical basis for trade secret law [namely classifying it as an IP right] helps defuse Robert Bone's criticism of the doctrine"). Lemley is not alone in believing that proper classification matters. Professor Eric Claeys, for example, has written extensively about the proper characterization of trade secrecy within the framework of private law theory. *See generally* Eric R. Claeys, *Intellectual Usufructs: Trade Secrets, Hot News, and the Usufructuary Paradigm at Common Law*, *in* INTELLECTUAL PROPERTY AND THE COMMON LAW 404 (Shyamkrishna Balganesh ed., 2013) [hereinafter Claeys, *Usufructary Paradigm*] (arguing that trade secret rights are usufructuary property rights); Eric R. Claeys, *Private Law Theory and Corrective Justice in Trade Secrecy*, 4 J. TORT L., no. 2, art. 2 (2011), http://www.degruyter.com/view/j/jtl.2011.4.2/jtl.2011.4.2.1115/jtl.2011.4.2.1115.xml?-format=INT (arguing that the normative interest in a trade secret makes the most sense as a usufructuary property interest) [hereinafter Claeys, *Private Law Theory*].

46. *See* Lemley, *supra* note 24, at 341.

47. *See id.* at 319–26. During the late nineteenth century, trade secret appropriation was treated as infringement of a property right in the secret information. *Id.* at 316. In the early twentieth century, it was considered a form of unfair competition, but the property conception was still influential. *Id.* In recent years, some commentators, including myself, have treated it as primarily a branch of contract law.

48. There is an argument that classification might help to cope with the problem of empirical uncertainty. I examine this argument in Part III below and explain why it does not work for trade secrecy.

and (3) those that raise new arguments or ones that I did not explore with care.

A. Reevaluating the Cost–Benefit Balance

The most serious problem with an economic justification of trade secret law is the indeterminacy of the social cost–benefit balance. Trade secrecy defenders tend to focus on benefits and minimize costs, while opponents focus on costs and minimize benefits. In my 1998 article, I raised questions about the magnitude of the benefits and showed why the costs are likely to be greater than normally assumed. Several scholars have tried to shore up the cost–benefit case by reinvigorating gap-filling arguments, bolstering the arms race argument, or showing that trade secrecy serves IP disclosure goals despite requiring secrecy.

1. Gap Filling.—One of the core defenses of trade secrecy emphasizes how it fills gaps in patent law. There are two versions of this argument: an ideal version and a pragmatic version. The ideal version defends trade secret law as a desirable supplement to even a well-functioning patent system. The pragmatic version defends trade secret law as a way to compensate for practical shortcomings of the existing patent system.

In the ideal version, defenders argue that trade secrecy fills structural gaps in patent law by incentivizing nonpatentable inventions and commercial information and by providing an alternative form of protection when costs or other factors make patents unavailable as a practical matter.[49] To a considerable extent, these are the same arguments that I discussed in 1998.[50] As I pointed out then, it is not clear how much additional incentive trade secrecy adds, given that patent law already provides indirect incentives for nonpatentable inventions by stimulating research and development efforts in general and also that firms already have market incentives to develop nontechnological, commercial information.[51]

---

49. *See, e.g.*, LANDES & POSNER, *supra* note 13, at 359–61 (discussing some of the benefits of trade secrets and stating that "the common law has plugged several economic holes in the patent statute"); Lemley, *supra* note 24, at 331 (noting that trade secret law provides important incentives missing in the law because it "reaches into a number of corners patent law cannot"); *see also* Michael Risch, *Trade Secret Law and Information Development Incentives*, *in* THE LAW AND THEORY OF TRADE SECRECY: A HANDBOOK OF CONTEMPORARY RESEARCH 152, 165–81 (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., 2011) (describing IP development incentives that trade secret law might create in interaction with other IP laws).

50. *See* Bone, *A New Look*, *supra* note 3, at 264–70.

51. *Id.* at 268–69, 271–72. Expanding on an argument first presented in an earlier article written with Professor David Friedman, *see* David D. Friedman et al., *Some Economics of Trade Secret Law*, 5 J. ECON. PERSP. 61, 64 (1991), Landes and Posner claim that trade secret law fine-tunes patent incentives. According to this argument, patent law over-rewards some inventions and under-rewards others. For example, a patentable invention that deserves only six years of exclusivity because it was not difficult to invent receives twenty years instead. Trade secret law, on the other hand, fits the term of protection in a rough way to the social value of the invention. It

Moreover, the social costs of adding trade secret law to the IP mix could be very large. Trade secrecy encourages duplicative investment in R&D by permitting independent discovery.[52] It also diverts investment away from patentable inventions by enhancing the private value of nonpatentable ones, a cost that is particularly significant if, because of the nonobviousness requirement, patentable inventions are likely to have greater social value.[53] Finally, the availability of trade secrecy frustrates the disclosure goals of the patent system when firms opt for trade secrecy to protect patentable inventions and when they employ a hybrid strategy coupling a patent on an invention with trade secrecy for the know-how needed to practice the invention effectively.[54]

Professor Lemley argues that patents are not a practical option for firms in fast-paced industries because of the time it takes the Patent and Trademark Office (PTO) to issue patents.[55] Since trade secret law is available immediately, it helps fill this gap. I treat this as an ideal argument because time lags can be significant even when the PTO is operating optimally. The question, however, is how much social benefit there is in providing quicker protection. If the marginal fixed costs of creating the next generation of inventions are relatively small when innovation is fast paced, given the fact that inventions are developed quickly, then incentives

---

does this by allowing for independent replication and by terminating trade secret protection when enough other firms have discovered the same invention (so it is no longer secret). The more difficult an invention is to invent, Landes and Posner reason, the longer it should take others to reinvent and therefore the longer trade secret protection will last. Thus, an inventor who should receive six years of protection rather than the twenty years patent law grants will receive something closer to the six-year period with trade secret law. This argument has several problems. For one, it is not at all clear that patent law over-rewards or under-rewards patentable inventions from an *ex ante* perspective. Presumably the patent term averages over all the different types of patentable inventions, and an inventor also averages in a similar way when he decides how much to invest. More precisely, the inventor takes an expectation over all the possible outcomes of his research efforts and invests in light of the expected value. Thus, as far as *ex ante* incentives are concerned, the patent term might do a fairly good job of motivating research activity in the right way. In addition, invention involves a good deal of luck, so the time it takes to reinvent might not be the same as the time it took originally to invent. Moreover, the possibility of reverse engineering means that the period of trade secret protection might be shorter than with only independent replication and this might also depress incentives to reinvent. And it might take less time for subsequent firms to reinvent when they know that the first firm was successful with its inventive efforts (which they might infer from observations even when the invention is kept secret). Knowing of a previous success reduces the risks associated with reinvention and can help to guide the intensity and direction of subsequent research efforts.

52. Bone, *A New Look*, *supra* note 3, at 265–67.

53. *See id.* It is true that firms will keep secrets anyway even without trade secret law. My point is that they will find patent more attractive when they cannot rely on trade secret law to provide extra legal protection for information they keep secret. How many more firms will choose patent law in the absence of trade secret law is an empirical question that requires much more study.

54. *Id.* at 266–70.

55. Lemley, *supra* note 24, at 331 & n.80 (suggesting that due to increasing backlogs it is likely that the PTO takes longer than the 2.77 years it took on average in the 1990s).

might be adequate without much IP protection. Moreover, in an environment of fast-paced innovation, each invention has value for only a short period of time and this value is likely to decline over the invention's useful life. Under these circumstances, a competitor has only a small window of opportunity for stealing the secret, which limits its chance of success. In fact, a rational competitor might well find it more profitable to invest in its own inventive efforts than steal inventions with very short lifespans. It is true that competitors have stronger incentives to steal techniques and methods with a general application, but this is just the sort of information that is likely to produce large social benefits from being disseminated widely.

The pragmatic version of the argument focuses on defects in the current patent system and argues that trade secret law is a useful way to compensate for them. This type of argument treats trade secrecy as a stop-gap measure, like a rag used to plug a hole in a pipe that actually requires a more extensive repair job. An obvious response is to urge that the defects in the patent system be repaired. Putting aside this response, however, there are other problems with the practical arguments trade secrecy defenders make.

Professor Lemley, for example, claims that trade secret law, by encouraging information sharing, helps to fill gaps in disclosure created by a poorly functioning patent disclosure system.[56] The problem with his argument is that trade secrecy does not publicly disclose inventions. It discloses to a contracting party but only under confidentiality constraints. That party learns the invention and might profit from the general knowledge in future work.[57] But it cannot teach the information to others.[58] Nor can it use the invention itself—as it can after a patent expires—or even improve on it to create something new.[59]

Some commentators, Lemley included, also note the importance of trade secrecy for start-up companies that cannot afford the high costs of patent litigation.[60] The obvious solution to this problem is to reduce the cost of patent litigation by streamlining patent doctrine. But even on its own terms, the argument is dubious. In fact, it is not clear that trade secret law provides a net benefit to start-ups. Some scholars suggest that start-ups might be better off in an environment where information is shared rather

56. *Id.* at 336 n.103.

57. 1A MILGRIM & BENSEN, *supra* note 8, § 2.01.

58. *Id.*

59. A party who receives a trade secret in confidence infringes the owner's trade secret rights even when it uses only a small but still substantial portion of the trade secret. 4 *id.* § 15.01(1)(d)(vi).

60. *See, e.g.*, Lemley, *supra* note 24, at 331 (noting that "patent litigation is as much as three times as expensive as trade secret litigation").

than kept secret.[61] Moreover, many start-ups involve employee spin-offs,[62] and trade secret law gives the former employer a weapon to disable the start-up as a potential competitor. If the employer files a lawsuit alleging that its former employees took trade secrets, the start-up is likely to have trouble accessing capital markets, which can doom it at an early stage.

2. Limiting the Arms Race.—Defenders of trade secret law continue to insist that trade secrecy can be justified by its salutary effect on the precaution-stealing arms race.[63] However, none of the more recent arguments add all that much to the analysis. Indeed, some treatments simply reassert the benefit without addressing any of the detection or litigation-cost problems.[64] Others go a bit further but not in a convincing way.[65]

Professor Michael Risch makes some important points that deserve special attention.[66] He notes that high litigation costs work two ways: they

---

61. *See, e.g.*, ALAN HYDE, WORKING IN SILICON VALLEY: ECONOMIC AND LEGAL ANALYSIS OF A HIGH-VELOCITY LABOR MARKET 50–52 (2003) (discussing six reasons why technology companies in Silicon Valley are better off sharing information).

62. *See, e.g.*, James J. Anton & Dennis A. Yao, *Start-Ups, Spin-Offs, and Internal Projects*, 11 J.L. ECON. & ORG. 362, 362 (1995) (noting that many start-ups are created by former employees of established firms).

63. *See, e.g.*, LANDES & POSNER, *supra* note 13, at 364–65; Vincent Chiappetta, *Myth, Chameleon or Intellectual Property Olympian? A Normative Framework Supporting Trade Secret Law*, 8 GEO. MASON L. REV. 69, 111–13 (1999); Risch, *supra* note 22, at 43–44.

64. For example, Landes and Posner simply state that legal protection is an "attractive substitute" for self-help without explaining why. LANDES & POSNER, *supra* note 13, at 364–65. Professor Chiappetta also relies on the benefit of limiting investments in self-help. Chiappetta, *supra* note 63, at 111–14. He counters my detection-cost argument by pointing out that firms would also invest in detection without trade secret law. *Id.* at 111–12. But he fails to recognize that investment might increase because trade secret law, by adding a litigation option, increases the payoff from detection. Chiappetta also suggests that clearer rules will reduce litigation costs. *Id.* at 14. This is a good point, but it is not apparent how to make trade secret rules clearer without eliminating the secrecy requirement and expanding the scope of liability quite far. Indeed, Chiappetta cabins liability with proposed rules that still require proof of bad acts as well as open-ended determinations of reasonable notice and good-faith efforts to maintain secrecy. *Id.*

65. Professor Lemley mentions the arms-race benefit in the course of discussing disclosure. He argues, among other things, that "physical investments must be made for each secret, while legal investments need be made only if there is misappropriation." Lemley, *supra* note 24, at 335. But as he recognizes, there are safeguards such as fences, walls, and general firm security measures that protect lots of secrets at the same time. *Id.* at 335 & n.102. These investments need be made only once, whereas litigation investment must be made separately for each misappropriation of each protected secret. And even when secrets are shared with others, confidentiality agreements can reduce the risk of misuse (recall that contract law is available).

66. He downplays the incentive argument and focuses on the arms-race benefit as the principal justification for trade secrecy. Risch, *supra* note 22, at 26–28, 41, 58; *see also* Risch, *supra* note 49, at 154 (arguing that the incentive argument is weak when trade secret law is compared to a no-IP-rights regime, but that the effect on incentives is a bit stronger when trade secret law is considered together with other IP theories). He sums up his analysis as follows:

> The question remains whether the need for more empirical information is sufficient to render trade secret law void of support. I believe it is not; there are sufficient

not only deter trade secret owners from filing suit, but they also deter competitors from trying to misappropriate secrets.[67] Risch is correct, but there are substantial limits to the deterrent effect of high litigation costs.[68] Because potential misappropriators discount the costs of trade secret litigation by the likelihood of suit, weak filing incentives will produce weak deterrence.[69] Moreover, the costs of trade secret litigation are likely to be higher for the trade secret owner than for the misappropriator. After all, the owner must prove that the defendant misappropriated rather than reverse engineered or independently discovered, and it also faces a risk that its secret will leak out during the litigation and that publicity about the misappropriation will adversely affect its reputation and performance in the capital markets.[70]

Risch also argues that trade secret litigation can be made more attractive, and detection avoidance less attractive, by adjusting trade secret remedies.[71] For example, he notes that disgorging profits and shifting attorney's fees for willful misappropriation make trade secret suits more attractive, reduce the expected benefits from improper acquisition, and increase the risks for potential appropriators.[72] Risch is correct that remedies can make a difference, but the question is how much of a difference. Increasing the litigation stakes is likely to increase the amount parties spend on the litigation, which adds enforcement costs and dilutes the positive effect of broader remedies on filing incentives. It can also increase frivolous filings and associated chilling effects especially for risk-averse start-ups.[73]

> meritorious lawsuits, as well as a sufficient reduction in arms races (such as the Chinese company example above) to warrant continued protection for trade secrets while further research is underway.

Id. at 64.

67. *Id.* at 64–66.

68. Professor Risch uses a game-theoretic model to support his deterrence point. *See id.* at 68–76. I do not wish to get into the details of his model here, but it is enough to note that there are problems with it. Of course, there are problems with all models, including my own in *A New Look*. This is the reason I prefer not to debate the issues with formal models. Models are useful to show what is possible and why. To that extent, Risch has shown that trade secret law *might* efficiently limit the arms race, but he has not shown that it *will*.

69. Trade secret owners might file just to establish a reputation as fighters, but this is an expensive strategy to pursue.

70. *See, e.g.*, Chris Carr & Larry Gorman, *The Revictimization of Companies by the Stock Market Who Report Trade Secret Theft Under the Economic Espionage Act*, 57 BUS. LAW. 25, 48 (2001) (reporting the results of an empirical study using event study methodology that shows a statistically and economically significant decline in stock market price after reporting trade secret theft under the Economic Espionage Act).

71. Risch, *supra* note 22, at 64–67.

72. *Id.*; *see also* UNIF. TRADE SECRETS ACT §§ 3–4 (amended 1985), 14 U.L.A. 633–34, 642 (2005) (providing for disgorgement and other damages for trade secret violations, including attorney's fees when misapropriation claims are made in bad faith).

73. Risch suggests that frivolous litigation can be handled through fee shifting and other

3. Enhancing Disclosure.—Professor Mark Lemley argues that trade secret law in fact encourages disclosure despite its focus on secrecy. One way it does so is by reducing the incentives of firms to use self-help measures that block disclosure.[74] Another way is by facilitating information exchange during negotiations and thus improving the prospects for successful licensing.[75] The latter benefit follows from the nature of bargaining over information. The problem is that the buyer is usually reluctant to agree to terms without first learning what the information is, but the seller is reluctant to reveal the information for fear that the buyer will simply take it.[76] Trade secret law solves this problem by assuring the trade secret owner that it has legal recourse if the buyer absconds with the secret. As a result, owners of secret information are more likely to disclose through licensing.

There are problems with Lemley's argument. For one thing, the extent to which trade secret law increases disclosure depends on the confidence firms have in the efficacy of trade secret litigation. There is evidence that firms are wary of relying heavily on litigation to protect their trade secrets because of the negative signal that filing a lawsuit sends, the difficulties proving misappropriation, and the risk of further leaks during the litigation process.[77] To be sure, the increase in reported trade secret cases mentioned earlier suggests some level of confidence in litigation, but is not clear how much.[78]

---

procedural measures. Risch, *supra* note 22, at 59–63. But routine fee shifting against losing plaintiffs will reduce filing incentives for meritorious trade secret suits. Moreover, fee shifting has complicated effects on frivolous suits, depending, among other things, on the lawsuit's information structure. *See, e.g.*, Robert G. Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519, 587 n.211 (1997) (analyzing incentives to file frivolous suits with special attention to informal asymmetry); Avery Katz, *The Effect of Frivolous Lawsuits on the Settlement of Litigation*, 10 INT'L REV. L. & ECON. 3, 17–19 (1990) (presenting an asymmetric information model of frivolous litigation).

74. Lemley, *supra* note 24, at 333–36.

75. *Id.* at 336–37.

76. This is known as Arrow's Information Paradox. *See* Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609, 614–16 (1962) (describing the features of information as a commodity and the resulting difficulties in creating a market for information).

77. Bone, *A New Look*, *supra* note 3, at 278 & n.167; 279; *see also* Carr & Gorman, *supra* note 70, at 48 (reporting adverse stock-price effects from reporting trade secret theft under the Economic Espionage Act); Mark E.A. Danielson, *Economic Espionage: A Framework for a Workable Solution*, 10 MINN. J.L. SCI. & TECH. 503, 505–06 (2009) (noting the reluctance of firms to admit that trade secrets have been stolen and offering various reasons for this, including concerns about signaling vulnerability to information breach and admitting inability to secure sensitive information).

78. *See supra* note 5 and accompanying text. If more firms are using trade secrecy, for example, it would not be surprising for the absolute number of suits to increase even with a relatively low filing rate.

More importantly, the disclosure that Lemley describes is not the type of disclosure that IP law contemplates. Public disclosure is an important IP policy not because it is inherently valuable, but because it enables members of the public to use information and build on it to make new creations after IP protection expires.[79] Trade secret licensing does little to further these goals. When Firm A licenses its trade secret to Firm B for the purpose of manufacturing products for A, Firm B is limited to using the information in the way A dictates.[80] B cannot copy it for B's own purposes or modify it to make something new.[81]

My point is not that disclosure through licensing has no value. After all, it enables more efficient marketing of information. Rather, my point is that it does little to promote IP's core public-disclosure goals. Lemley seems to assume that any disclosure furthers these goals. But IP law does not value disclosure for its own sake; it values disclosure for the social benefits it generates and those benefits assume that others can use the information to compete or create something new.

In addition, ordinary contract law can handle much, if not all, of the licensing problem. The trade secret owner need only have the buyer sign a nondisclosure and nonuse agreement (NDA) before revealing the trade secret. If the buyer then discloses or uses the secret, the trade secret owner can sue for breach of contract. Lemley recognizes this, but he argues that the buyer might be reluctant to enter into a NDA without first knowing the secret.[82] This is correct as far as it goes, but trade secret law does not solve this problem. A buyer worried about the contract restraint will also worry about the constraints imposed by trade secret law and should be just as reluctant to receive the secret information.[83]

It is true that contract remedies are more limited than trade secret remedies, but there is nothing to prevent a court from granting an injunction through specific performance when damages are inadequate—assuming

---

79. *See, e.g.*, LANDES & POSNER, *supra* note 13, at 294–95 (noting that disclosure allows competitors to "invent around" a patent). Disclosure also avoids wasteful duplication of research. *Id.* at 302.

80. *See, e.g.*, Data Gen. Corp. v. Grumman Sys. Support Corp., 36 F.3d 1147, 1165–67 (1st Cir. 1994) (describing a licensing agreement in which the licensee was limited to using the licensor's proprietary information for explicitly stated purposes).

81. *See supra* note 59 and accompanying text. As a result, a trade secret disclosure does nothing to promote downstream innovation or help to generate substitute products that compete with the trade secret owner's to reduce deadweight loss.

82. Lemley, *supra* note 24, at 337.

83. Lemley argues that trade secrecy is better because it imposes confidentiality duties without the need for any express agreement. *Id.* at 336–37. But he does not explain why this is important. In many situations, the buyer has reason to know about the restrictions anyway, since trade secret law requires notice of expected confidentiality prior to disclosure as a condition to a legally-enforceable confidentiality duty. *Id.* at 318. To be sure, some buyers might not construe the notice properly and therefore be unaware of their confidentiality obligations. But tricking unsophisticated buyers can hardly count as a social benefit.

contract policies support specific performance.[84] Admittedly, contract law does not furnish recourse against third parties when the buyer discloses to someone else.[85] However, this risk might not be all that serious in many negotiating situations, especially as the trade secret owner is likely to screen contracting partners and negotiate only with those firms that have a solid reputation.

Of course, the fact that trade secret law does not advance IP public-disclosure policies does not mean that limiting trade secret law to contract would do a better job. I believe that an approach based mainly on contract will enhance information diffusion, because firms will use the patent system more often and there will be more access opportunities. But, of course, my beliefs in this regard depend on certain predictions about firm behavior, which, while quite plausible, can ultimately be confirmed only with empirical information that we do not yet possess.[86]

B. Bolstering Existing Moral Arguments

Professor Risch makes an effort to salvage the contractarian argument. He argues that firms bargaining behind a veil-of-ignorance would choose a limited form of trade secret law as long as they valued their own creations more than those made by others (so would benefit from secrecy) and also valued building on the work of others (so would benefit from limits).[87] This argument suffers from the same problems as the contractarian arguments for trade secrecy that I discussed in my 1998 article.[88] In particular, Risch does not explain why actual firms should accept the results of hypothetical bargaining after the veil is lifted.[89] It does not work simply

---

84. And if those policies do not, then there is no other reason to enjoin—or so I argue.

85. Under trade secret law, a third party can be held liable if it acquires a trade secret from someone who obtained it wrongfully, knowing or having reason to know that the information was wrongfully obtained. UNIF. TRADE SECRETS ACT § 1(2)(ii)(B) (amended 1985), 14 U.L.A. 537 (2005). Also, a third party who obtains the information innocently must still stop using it when the trade secret owner provides notice of its claim, unless the third party has substantially changed its position in the interim. *Id.* § 1(2)(ii)(C).

86. Lemley worries that other torts, such as unjust enrichment, breach of confidence, and misappropriation, will come into play if trade secret law is eliminated and that those torts would protect trade secrets even more expansively. Lemley, *supra* note 24, at 344–46. He recognizes that courts today sometimes apply these torts when trade secret requirements are not satisfied, and he argues that trade secret law should preempt these alternatives. *Id.* at 344–48. I agree that broad tort substitutes for trade secret law should be eliminated—for the same reasons that trade secret law should be circumscribed. But that is no reason to keep trade secret law. Perhaps Lemley is concerned that the *only* legal way to cut off the alternative theories is to use trade secret preemption. But that is not true. All of the alternatives are common law torts, and judges have the power to alter the common law when it makes sense to do so.

87. Risch, *supra* note 22, at 35.

88. *See* Bone, *A New Look*, *supra* note 3, at 291–94 (critiquing the contractarian justification for trade secret law and concluding that the justification fails).

89. *See supra* note 40 and accompanying text. For example, those firms that know they are not particularly innovative and depend mostly on copying from others might do much better

to argue that stripping firms of information about themselves avoids self-interest and assures impartiality. Moral principles governing trade secret law are supposed to regulate market competition, and market competition is all about self-interested choice. More generally, one must justify the information structure of the bargaining situation as a reasonable fit to the institution being regulated; otherwise firms in the real world can legitimately dismiss the resulting principles as irrelevant. Because trade secret law regulates the institution of the market and because the market depends at its core on self-interested competition, it is not obvious why market competitors should think about secrecy rules from the impartial point of view that veil of ignorance arguments require.

Risch also advances what he calls a "populist" justification of trade secrecy.[90] The idea seems to be that trade secret law can be justified by its longstanding acceptance as an IP theory, as well as by the popular support for it evidenced most recently by the general adoption of the UTSA.[91] However, Risch must explain how the fact of acceptance and popular support gives a normative justification. If he means to make an argument from moral conventionalism, it fails for the same reasons that I discussed in my 1998 article.[92] The fact that trade secret law has been around for a long time does not necessarily mean that the general public considers it well-justified. Moreover, legislative adoption of the UTSA is hardly proof that people accept trade secrecy for moral reasons or even that it is generally accepted "by the masses" regardless of reason.[93]

Perhaps Risch's argument is not about conventionally accepted moral beliefs but rather about the legitimacy of laws adopted through a democratic majoritarian process. If so, it cannot justify trade secrecy as socially desirable. The fact that a law has been adopted by a legislature makes it a binding law, but it does not necessarily make it a good law, unless there is some reason to believe that the legislature tends to make good laws despite public choice defects.[94]

C. *New Arguments*

Several scholars have offered new arguments that I did not address or addressed only briefly in my 1998 article. The following discussion focuses on four of these arguments: an argument from unjust enrichment and personhood; an argument based on Lockean labor-desert theory; an

---

without trade secret law.

90. Risch, *supra* note 22, at 35–37.

91. *Id.* at 35.

92. *See* Bone, *A New Look*, *supra* note 3, at 294–96 (critiquing the argument that trade secret law is a method to "enforce the informal norms of an industry").

93. Risch, *supra* note 22, at 35.

94. I discuss this point a bit more in Part III(B)(1).

argument based on a conceptual, corrective-justice-based account of private law; and an argument based on the practical advantages of treating trade secrets as property.[95]

1. Unjust Enrichment and Personhood.—The problem with many appeals to unjust enrichment is that they assume enrichment is unjust without explaining why. The mere fact that B benefits from the creative efforts of A without A's consent is not enough for B's enrichment to be "unjust." Free riding is perfectly acceptable; indeed, our society would not be possible without it.[96] To be sure, free riding can sometimes be unjust, but something more than the act of free riding itself is necessary to constitute injustice.

In a 1999 article, James Hill explores the implications for trade secrecy of a particular version of unjust enrichment theory propounded by Professor Hanoch Dagan.[97] Hill focuses his analysis at three levels: trade secret remedies, "policy rationales" behind those remedies, and "human values" that those policies "represent."[98] He argues inductively, starting with remedies,[99] inferring policies behind the remedies, and finally teasing out values that the policies embody. Having identified the values and policies, he then uses them to justify the doctrinal features of trade secret law.

To illustrate Hill's approach, consider his treatment of the different trade secret remedies. Hill argues that allowing a trade secret owner to obtain relief for the fair market value of his secret promotes the owner's

---

95. In addition, Professor Jeanne Schroeder has offered a Hegelian account of trade secret law. Jeanne L. Schroeder, *Unnatural Rights: Hegel and Intellectual Property*, 60 U. MIAMI L. REV. 453, 466 (2006). As she readily admits, however, this account is only relevant to whether trade secrets should be treated as property and says nothing about what kind of legal protection trade secrets should receive. *Id.* at 501–02.

96. *See, e.g.*, Wendy J. Gordon, *On Owning Information: Intellectual Property and the Restitutionary Impulse*, 78 VA. L. REV. 149, 167 (1992) (noting that "[a] culture could not exist if all free riding were prohibited within it"); William P. Kratzke, *Normative Economic Analysis of Trademark Law*, 21 MEMPHIS ST. U. L. REV. 199, 223 (1991) (arguing that free riders can create value and foster competition).

97. James W. Hill, *Trade Secrets, Unjust Enrichment, and the Classification of Obligations*, 4 VA. J.L. & TECH., art. 2, paras. 44–47 (1999), http://www.vjolt.net/vol4/issue/home_art2.html. *See generally* HANOCH DAGAN, UNJUST ENRICHMENT (1997) (presenting a positive theory of unjust enrichment that connects it to the "core social values" of the community in which it is applied). I hasten to add that my discussion in this Part focuses on Hill's particular application of Dagan's theory and not on Dagan's theory itself.

98. Hill, *supra* note 97 at para. 46. More generally, he views the "doctrine of unjust enrichment" as embodying "a wide range of remedies" that reflect social choices about the distribution of resources, which in turn rest on "policy rationales" that "represent" "important human values." *Id.* paras. 46–48.

99. Hill chooses remedies as his starting point, rather than rights, because "the choice of the measure of recovery in a given case can in fact be normative" and "courts sometimes appear first to determine what level of intervention and protection is appropriate and then derive from their conclusion the nature of the plaintiff's 'right.'" *Id.* para. 45.

well-being because fair market value fully compensates for the value of the secret, and he concludes from this that furthering well-being must be the rationale behind this remedy.[100] He then moves from the level of rationale to the level of value by arguing that the well-being rationale represents "the societal value of protecting a person's security in her wealth."[101] By contrast, the remedy that provides compensation for loss vindicates a "sharing" rationale because it compensates only for present loss and forces the owner to share future profits with the wrongdoer. A sharing rationale, Hill argues, reflects the value of responsibility for others.[102] Furthermore, a remedy that allows recovery of the defendant's profits vindicates "control" because, by stripping a wrongdoer of all its benefits, it deters takings. And the control rationale, in turn, represents the value of individual liberty.[103]

Hill also argues, again following Hanoch Dagan, that society emphasizes the rationales of control, well-being, and sharing according to how closely the resource is identified with personhood: control is reserved for resources that are most closely tied to personal identity.[104] Thus, in order to justify remedies, such as recovery of profits that vindicate control, Hill must align trade secrets tightly with personhood. And he does exactly that: "to the trade-secret owner, the trade secret could be something that, in Dagan's words, is an 'external [thing] that . . . [is] constitutive of her identity,' and perhaps even near the 'center of selfhood.'"[105]

This argument is complicated.[106] Fortunately, we do not need to parse it in depth in order to identify its problems. The first problem is that it is circular. Hill purports to derive the values that trade secret law serves from the existing structure of trade secret law and then enlists those values to justify existing law. To be sure, a constructivist approach using a coherence methodology has some of these same characteristics, but properly done, it is much more demanding.[107] The goal of a coherence

---

100. *Id.* para. 67.

101. *Id.* para. 85 (emphasis removed). He follows Dagan in assuming that "[c]*ontrol* reflects the goal of individual liberty, *well being* reflects a person's security in her wealth, and *sharing* reflects the responsibility of other members of society for a person's fate." *Id.* para. 75.

102. *Id.* para. 68.

103. *Id.*

104. *Id.* paras. 77–78 (noting that "Dagan argues that our attachment to resources derives from our perception of resources as being 'reflections of ourselves, symbols of our identity'" and "[t]his *personhood* perspective can explain why certain interests individuals have in their resources give rise to stronger claims than others do"). For example, the rationale of control and its underlying value of liberty are associated with resources most closely tied to personal identity, whereas the rationale of sharing and its underlying value of responsibility are associated with resources remote from personhood. *Id.* para. 75.

105. *Id.* para. 88.

106. And, I must say, a bit confusing in parts.

107. *See generally* RONALD DWORKIN, LAW'S EMPIRE 49–113 (1986) (describing an interpretivist approach); RAWLS, *supra* note 39, at 20–22, 48–53 (describing the method of reflective equilibrium).

account is to fit as many of the relevant legal rules, principles, and judicial decisions as possible into a coherent whole, not just rules about remedies.[108] Moreover, a normative account developed in this way has critical force when applied to existing law. Hill's approach is not nearly as sophisticated and lacks critical bite.

Second, the "values" and "rationales" that Hill chooses seem rather arbitrary. For example, he equates compensation for harm with a sharing rationale,[109] but never explains why it is not equally sensible to equate it with an efficiency rationale—as promoting socially optimal incentives to create or perhaps helping to support an efficient insurance market. It is also not clear why deterrence through control needs to be linked to the value of liberty instead of the value of utility maximization (through the quasi-public goods rationale for IP rights).

Third, the values of liberty, security, and responsibility are too abstract to have much purchase on the question whether a broad trade secret law is justified. For example, Hill insists that trade secret law must extend beyond contract because contract cannot "vindicate fully those values" embedded in trade secrecy.[110] But I do not understand why this is so. The enforcement of confidentiality agreements, for instance, furthers liberty values and also security values by giving a trade secret owner a measure of control over the secret. To be sure, control is stronger when trade secret owners can enjoin strangers—and maybe this means that liberty is furthered to a greater extent (depending on one's view of liberty)—but the question is whether that degree of control is desirable when liberty is just one of the policies at stake.

Fourth, Hill's argument that trade secrets are closely bound to personhood makes no sense.[111] In the typical case, the trade secret is owned by a firm, and firms, as such, do not possess the moral autonomy necessary to trigger personhood values.[112] Moreover, it is not at all obvious that technological innovations, firm know-how, and commercial information are the kind of subject matter capable of supporting moral personhood claims. And even if they are, the resulting claims would attach to the individual inventor or creator and not to the firm itself.

---

108. *See* DWORKIN, *supra* note 107, at 405–06 (arguing that judges must consider coherent principles of "political fairness, substantive justice, and procedural due process" and precedents to construct an overall theory of law).

109. Hill, *supra* note 97, para. 68 (arguing that "limiting recovery to *harm* really vindicates . . . *sharing*").

110. *Id.* paras. 45, 96.

111. In this respect, Hill disagrees with Professor Dagan. *See id.* paras. 83–85 (noting Dagan's view that a trade secret "'is the least connected to its holder's identity'").

112. Hill uses the example of a restaurant made famous because of a secret recipe, and he assumes that the originator of the recipe would feel that the recipe and maybe even the restaurant were closely tied to her personal identity. *Id.* para. 88. Assuming this example makes sense on its own terms—which is not at all clear—it is not a typical trade secret case.

2. Lockean Labor-Desert.—I briefly considered the Lockean natural-rights justification for trade secret law in my 1998 article and dismissed it mainly because it cannot justify core trade secrecy rules, including the requirement of secrecy and the requirement of improper means.[113] Since then, several commentators have tried to justify trade secret law within a Lockean theory. I focus here on Professor Eric Claeys's account because it is the most developed.[114] I shall argue that his account does not explain core features of trade secrecy, but in fairness to him, I should note at the outset that he offers his account only as a "first approximation" and "a prologue" to future work.[115] Moreover, his main project, which I address in the next section, is a more general one of analyzing trade secrecy within what he calls a "conceptual" approach to private law theory, and the discussion of Locke is a part of that larger effort.[116]

Roughly speaking, the core of a Lockean natural-rights theory focuses on an assumed natural right to one's own labor and then argues for an extension of that natural right to include anything of value created by mixing one's labor with the things of the world.[117] Professor Claeys relies on a similar but not identical theory.[118] The difference might be salient, but I cannot tell without a more detailed account. In any event, the definition I provide here is a standard one. Understood in this way, a Lockean theory might justify a misappropriation right. But it is difficult to see why that right would be limited to secrecy and why the method of appropriation rather than just the fact of appropriation should matter.

---

113. *See* Bone, *A New Look*, *supra* note 3, at 283–84 (rejecting the Lockean labor-desert theory as "not nuanced enough to explain the limits or reach of trade secret law").

114. *See* Claeys, *Private Law Theory*, *supra* note 45, at 32–34 (discussing a labor-based justification for trade secret law and arguing that it is a "plausible enough" theory). Professor Risch also mentions Lockean theory. Risch, *supra* note 22, at 28–33 (reviewing the Lockean labor-value theory and asserting that the theory justifies the general concept of trade secret law). Although Risch's main defense of trade secrecy is economic, it is worth noting two rather puzzling features of his Lockean account. First, he claims that there is a utilitarian version of the Lockean argument. *See id.* at 32–33. Perhaps there is, but then my response to the economic arguments for trade secret law applies. Second, Risch relies on moral conventionalism in an unhelpful way. He argues that wide acceptance of Lockean theory as a morally valid justification is sufficient to make it a valid justification. *Id.* at 31. I am not a conventionalist about morality, but even if I were, I would not be convinced by this argument without evidence that most people accept the principles of Lockean theory after sufficient deliberation and reflection.

115. Claeys, *Private Law Theory*, *supra* note 45, at 30 n.151, 34.

116. *See infra* section II(C)(3).

117. *See* JOHN LOCKE, *The Second Treatise of Civil Government*, *in* TWO TREATISES OF GOVERNMENT 133, 134 (Thomas I. Cook ed., Hafner Publishing Co. 1947) (1690) ("Whatsoever then he removes out of the state that nature hath provided and left it in, he hath mixed his labour with, and joined to it something that is his own, and thereby makes it his property.").

118. *See* Claeys, *Private Law Theory*, *supra* note 45, at 32 (focusing on the activity of laboring rather than the right of labor: "Oversimplified a little, labor consists of intelligent and purposeful activity producing goods rationally" beneficial to individuals).

Claeys argues that "when a claimant-competitor develops a minimally novel intellectual work, his discovery or information gathering constitutes intellectual labor" and as such "[t]he claimant . . . deserves a reward for having contributed the discovery or assembly to society's store of knowledge," and this reward "consists of the exclusive use of the intellectual work for the increment of time the work's intellectual content remains secret."[119] Claeys responds to my criticisms directly. He argues that secrecy (and reasonable secrecy precautions) is the way that an owner appropriates information as a condition to obtaining Lockean rights, for secrecy marks off the trade secret as proprietary information distinguishable from the intellectual commons.[120] As for limiting liability to improper methods of appropriation, Claeys argues that it "instantiates labor theory's 'enough and as good' proviso" by protecting "*only* the claimant's labor, not the general idea he labored to discover, reduce to practice, and use."[121]

I am not convinced by these arguments. For one thing, I do not understand why the "reward" of exclusive use is limited to the period of secrecy. Claeys seems to think that this can be justified by the fact that labor theory protects only the labor and not the idea.[122] But this is a *non sequitur*. Even if labor theory protects only labor and not the idea, presumably this applies no matter whether the idea is kept secret or not.

Nor do I understand why secrecy is required for rights. Claeys argues that labor theory requires appropriation and appropriation requires that the owner signal to others that he claims the information as his own, which a trade secret owner does by keeping its information secret.[123] But I fail to see why it is necessary to use secrecy to signal one's claim.[124] Why is it not enough that a firm uses the information in a way that others would construe as exclusive, or even that it just provides public notice of its exclusivity claim?[125]

---

119. *Id.* at 33. This formulation of the Lockean justification raises a number of questions. Why does the contribution to society rather than the creation itself trigger the reward? If it is the contribution, then how is it that a contribution is made when a firm keeps its creation secret? Does the natural right extend to negative know-how not actually used in any active way? Also, why is the reward of exclusive use limited to the period of secrecy?

120. *Id.* at 33–34.

121. *Id.* at 34.

122. *See id.* (stating that under the labor theory the moral right to exclusive use extends only to the claimant's labor, not his or her basic idea, thus allowing for independent discovery).

123. *Id.* at 33–34.

124. For example, despite being anchored in natural property rights closely associated with Lockean theory, late nineteenth century trademark law only required use of the mark in trade to satisfy the appropriation requirement. *See* Robert G. Bone, *Hunting Goodwill: A History of the Concept of Goodwill in Trademark Law*, 86 B.U. L. REV. 547, 562–67 (2006) (outlining the development of trademark law in the nineteenth century).

125. *See* Bone, *Trade Secrecy*, *supra* note 3, at 59–60 (arguing that "[n]otice can be given without many (if any) precautions").

Also, I do not understand how Locke's "'enough and as good'" proviso justifies trade secret's limited scope.[126] That proviso might justify fair use privileges aimed at facilitating downstream innovation or an idea–expression dichotomy that assures a robust public domain. But trade secret's limits are different.[127] They are cast in terms of the method of appropriation, which must involve a breach of confidence, violation of an independent legal norm, or some other improper means.[128] To be sure, these limits allow others to use information when they obtain it lawfully, but any kind of limit does that. For labor theory to make sense of trade secret law, it must be able to justify trade secrecy's particular limits, and it is not clear how a theory based on creative labor can do that.[129]

For these and other reasons, I remain unconvinced that a persuasive Lockean justification for trade secret law is possible. Labor theory fits copyright and general misappropriation torts well enough, even if the consequences are not ones we wish to accept. But it does not fit trade secrecy's core features at all well.

3. Private Law Theory.—As I mentioned above, Professor Claeys's broader purpose is to justify an independent role for trade secret law by relying on what he calls "private law theory," which rests on a corrective-justice foundation. According to Claeys, private law theory is a "branch of conceptual philosophy identifying the basic social and normative concepts on which the private law relies."[130] Roughly, the idea is to construct a unified theory of property, tort, contract, and other private law fields that fits "social facts" about trade secret law and organizes extant principles and rules in a coherent way.[131]

Claeys concedes that his purpose is primarily positive rather than normative.[132] He describes his project as "a positive study of trade secrecy" based on "private law theory" that aims to answer two questions: first, whether "trade secrecy [has] a normatively autonomous guiding principle,"

126. *See* Claeys, *Private Law Theory*, *supra* note 45, at 34 (arguing that trade secret's focus on misappropriation by improper means exemplifies labor theory's "'enough and as good'" proviso).

127. Trade secret law does not have a general fair use privilege and it applies to abstract as well as concrete forms of information. *See* MILGRIM & BENSEN, *supra* note 8, § 1.01.

128. *See supra* note 11 and accompanying text.

129. Claeys admits that it is not obvious how labor theory can justify reverse engineering, given uncertainty about "whether reverse engineering counts as labor by competitors on information publicly available from a secret or as misappropriation of the claimant's secret." Claeys, *Private Law Theory*, *supra* note 45, at 34.

130. *Id.* at 1.

131. *Id.* at 49.

132. *Id.* at 2.

and second, "[i]f so, in what field of private law . . . that principle sound[s]."[133]

However, Claeys does not limit himself to a strictly positive account. He also briefly sketches some normative arguments to support various trade secret doctrines and, as we saw in the previous section, he presents a normative defense for classifying trade secrecy in the property category, using Lockean labor-desert theory to do so. He makes clear that his normative arguments are meant to be only "preliminary" and that the main focus of his Article is on "positive conceptual and structural issues."[134] These caveats limit the import of his analysis for my project.[135] But it is still important to address the arguments he makes.

This is not the place to probe Claeys's account with care. I am not familiar enough with conceptual private law scholarship to do so confidently in any event. But there are several aspects of his discussion that leave me skeptical of the payoff from a private law approach.

Much of Claeys's analysis involves discovering the proper legal classification for trade secrecy.[136] He rejects the fields of tort, relational obligations, and "fairness and equity" because he believes that they beg the question or fail to account for some important feature of trade secrecy.[137] According to Claeys, for example, a tort classification does not work because tort does not have internal principles capable of determining whether particular methods of appropriation are "improper," and a relational-obligations classification does not work because it cannot account for cases like *E.I. duPont deNemours & Co. v. Christopher* that do not involve preexisting relationships.[138] He then concludes that trade secret law

---

133. *Id.*

134. *Id.* at 16.

135. Claeys himself recognizes that "my positive explanation cannot hang together unless the normative justifications I assume for trade secrecy are minimally persuasive." *Id.* at 16; *see also id.* at 25 (expressing a belief that social values are necessary to explain and justify the private law).

136. *Id.* at 6–13 (viewing "[t]rade secrecy law and scholarship" as struggling to "ground the field in some other seemingly-fundamental field of law," such as tort, property, relational obligations, or "fairness and equity"); *see id.* at 27–30 (analyzing possible classifications with care and settling on property); Claeys, *Usufructary Paradigm*, *supra* note 45, at 420–21 (arguing that trade secret rights are properly classified as usufructary property rights); *see also supra* notes 44–48 and accompanying text (critiquing Professor Lemley's reliance on classification). It is worth noting in this regard that Claeys argues for a property characterization in part on the ground that it is needed to prevent some trade secret contracts from being unlawful restraints of trade in violation of the antitrust laws. Claeys, *Usufructary Paradigm*, *supra* note 45, at 429. I am not an antitrust expert, but I fail to see why this doctrinal problem cannot be handled by recognizing an exception to antitrust liability if the policies support it.

137. Claeys, *Private Law Theory*, *supra* note 45, at 6–13; *see also id.* at 43–44 (noting that the inability of confidentiality norms and unfair competition principles to explain key features of trade secret doctrine "call[s] these accounts into question and confirm[s] the proprietary account").

138. *Id.* at 6–7, 10–12, 28. Claeys also focuses on *Chicago Lock Co. v. Fanberg*, 676 F.2d

best fits the property category and that trade secret rights should be understood as usufructary property rights.[139] Moreover, he extracts a "normatively autonomous principle" that he claims guides and unifies trade secret law: "The law of trade secrecy presumes as true, declares, and implements a normative interest in determining exclusively the research, development, and commercial use of a secret and competition-enhancing intellectual work."[140]

In view of Professor Claeys's insistence that his analysis is mainly positive, I am inclined to believe that this discussion is intended as a positive analysis, dependent on separate policy arguments for any normative bite. However, if the property classification and autonomous normative principle are also meant to ground normative arguments for trade secrecy, then I should address them directly.

In that case, I do not understand why the only principles available are those that are internal to the legal category to which trade secrecy belongs, or even what it means for a principle to be "internal" to a category like

---

400 (9th Cir. 1982), as an example. *See* Claeys, *Private Law Theory*, *supra* note 45, at 12, 15, 44–45 (discussing *Fanberg*). I fail to see how the case supports his point. In *Fanberg*, the Ninth Circuit held that the plaintiff Chicago Lock could not recover from the defendant Fanbergs for compiling lock codes that Chicago Lock kept as trade secrets when the Fanbergs obtained those codes from locksmiths who, in turn, learned them by working on the locks of their customers. *Fanberg*, 676 F.2d at 401–03. The Ninth Circuit reasoned that while the locksmiths owed a duty of confidence to their customers because of the nature of that relationship, they owed no duty of confidence to Chicago Lock. As a result, the Fanbergs could not be held liable to Chicago Lock for getting the locksmiths to reveal what they learned from reverse engineering the codes. *Id.* at 405. Claeys claims that the case could have been decided either way on confidentiality grounds because the Fanbergs' conduct "still jeopardized the confidential interests held by [Chicago Lock] and its customers." Claeys, *Private Law Theory*, *supra* note 45, at 45. But that is true only if the law imposes a duty of confidentiality absent agreement or a preexisting relationship, and Claeys cites no confidentiality principles or rules that would support such a broad duty. Claeys makes much of a brief portion of the opinion in which the Court states that if Chicago Lock could prevent its customers from reverse engineering its lock codes, the result would be a state-created monopoly similar to patent and thus preempted by the Patent Act. *See id.* at 12, 45 (discussing this argument). In Claeys's view, the "anti-monopoly norm" implicit in the Court's argument is "external to the field of confidentiality;" therefore, the fact that the Court treats it as "internal to trade secrecy" means that trade secrecy needs more normative content than the field of confidentiality law can supply. *Id.* at 12. Claeys might be correct that the rule allowing reverse engineering cannot be justified solely by policies supporting confidentiality duties when that rule is deployed affirmatively to limit trade secret protection. However, Claeys's overall argument makes sense only if one already accepts the premise that the law can be divided neatly into separate fields that are all normatively self-contained. Moreover, even if one accepts the premise of normatively self-contained legal fields, the field of contract law, which covers confidentiality agreements, surely contains "anti-monopoly norms" as part of the public policy exception to contract enforcement. *See id.* at 55–56 (recognizing that a principle against restraints of trade fits contract law).

139. Claeys, *Usufructary Paradigm*, *supra* note 45, at 420–21.

140. Claeys, *Private Law Theory*, *supra* note 45, at 2; *see also id.* at 30 ("[T]rade secrecy declares a normative right tailored to protect a normative interest in determining exclusively the research to develop and the efforts to deploy commercially a secret and competitively-valuable intellectual work.").

tort.[141] If justification is the aim, the key should be whether the principle justifies the doctrine, not whether it is internal or external to some field. In other words, policy ought to come first and classification second. This is how I approached the analysis in my 1998 article and I continue to believe it is the correct way to do so.[142] My central normative point is that the policy justifications offered to support extending trade secret law beyond breach of contract are weak, and that as a result trade secrets should be given whatever protection the economic and moral policies favoring enforcement of voluntary agreements justify, taking into account the specific characteristics of trade secrets and the contexts in which they are used and exchanged.

Second, Claeys's more straightforward policy arguments are just versions of familiar economic and moral arguments. This is not a criticism of Claeys's analysis; he makes clear that his policy arguments are only "preliminary" and offered mainly in the service of his broader positive project.[143] Still, it is worth mentioning that his arguments do not affect my critique in any way. For example, Claeys argues that in restraining B from misappropriating A's secrets while still permitting some methods of appropriation, trade secret doctrine assures that "B's interests are not set back in any meaningful way" because A's secret will eventually be disclosed lawfully and "percolate to B."[144] Thus, trade secrecy "reconciles B's narrow pursuit of his immediate advantage to his more enlightened interest in being the member of a well-ordered society."[145] If this argument is meant to be normative, it begs the question of what trade secret rules make for a "well-ordered society" and what metric should be used to determine whether society is "well-ordered."[146]

---

141. If a judge exercising common law powers relies on some principle to justify a tort doctrine, why does this not make the principle internal to the field of tort? Moreover, I have some problems with Claeys's classification arguments. His argument about relational obligations assumes that *Christopher* was properly decided, but that simply begs the question. Even his property account has trouble explaining all the cases. For example, it cannot explain trade secret cases like *Franke v. Wiltschek* that focus on the wrongfulness of the appropriation without regard to the secrecy of the information. *See* Franke v. Wiltschek, 209 F.2d 493 (2d Cir. 1953); *see also* Rohm & Haas Co. v. Adco Chem. Co., 689 F.2d 424 (3d Cir. 1982) (focusing on the wrongfulness of the appropriation in determining whether trade secret law had been violated).

142. Claeys labels me as an "instrumentalist utilitarian." Claeys, *Private Law Theory*, *supra* note 45, at 17. If he means by this label that I reject moral arguments out of hand, he is wrong. I am open to moral justifications, even deontological ones. What I am not open to are poorly developed moral arguments that cannot do the justificatory work assigned to them.

143. *Id.* at 16.

144. *Id.* at 40–41.

145. *Id.* at 41.

146. There are other examples, too. Claeys criticizes a utilitarian approach for not explaining why the social-welfare benefits of information production and exchange could not be subsidized by the government rather than enforced through private rights. *Id.* at 36. But a utilitarian approach does have something to say about the relative merits of private rights versus public subsidies, including the risk that government subsidies might lead to government censorship and

Claeys takes me to task for downplaying features of current trade secret law that do not fit a focus on contract. However, it is an open question, as far as I am concerned, whether these features should remain part of the law, and the answer requires a policy analysis. One of the most important features of this kind is the rule that trade secret rights can be enforced against third parties not in privity with the trade secret owner. In my 1998 article, I took a stab at evaluating the costs and benefits of this rule and concluded that its support is not nearly as strong as trade secret proponents assume, except perhaps in some specific contexts.[147] If it is not functionally justified, this rule does not count against treating trade secret law as mainly a matter of contract.

4. Practical Arguments.—Some commentators claim that there are important practical benefits to treating trade secrecy as an independent-liability theory grounded in property or intellectual property. They argue that doing so will constrain excessively broad judicial findings of liability by focusing the judge on secrecy, value, and other elements that bear on whether a property right exists.[148] The first problem with this argument is that constraining judges is a benefit only if the supposedly problematic liability determinations are, in fact, excessive, and that depends on one's normative theory of trade secret law. Therefore, the argument cannot, on its own, justify trade secrecy.

Second, I am skeptical that the choice of label really matters as much as the argument assumes. For example, if a contract were to clearly limit confidentiality obligations to secret information that is protected by secrecy precautions, I expect a judge would focus on secrecy and secrecy precautions at least as much as if trade secrets were classified as property.

Third, it is not clear to me that the proposal will have the desired result even if judges do respond to rhetorical choices. It seems at least as likely that classifying trade secrets as property could produce even more expansive liability by leading judges to adopt a property-type

---

the likelihood of more robust innovation through decentralization.

147. *See* Bone, *A New Look*, *supra* note 3, at 282–83, 303–04. Professor Samuelson has discussed another possible cost to giving protection against third parties, namely, the cost to First Amendment rights of enjoining use of informational secrets imbued with a public interest when the third party acquires them innocently and seeks to publish them. *See* Pamela Samuelson, *Principles for Resolving Conflicts Between Trade Secrets and the First Amendment*, 58 HASTINGS L.J. 777, 811–14 (2007). Samuelson does not recommend abolishing trade secret rights against third parties, but she does recommend applying First Amendment prior restraint law to limit injunctive remedies. *Id.* at 816.

148. *See* Charles Tait Graves, *Trade Secrets as Property: Theory and Consequences*, 15 J. INTELL. PROP. L. 39, 46 n.8 (2007) (grounding trade secrecy in property rights); Lemley, *supra* note 24, at 342–44 (grounding trade secrecy in intellectual property rights).

misappropriation analysis that focuses attention on the defendant's nonconsensual taking of the plaintiff's valuable information.[149]

Fourth, even if the claimed benefit were to materialize, it still must be combined with other benefits and balanced against costs. The problem then remains. What should the law do when there is insufficient empirical evidence to support confident predictions about the magnitude of benefits and costs? The final Part of this Article takes a first cut at answering this question.

III. Responding to the Empirical Deficiency

To recap, we have seen that the moral arguments for a normatively independent body of trade secret law remain unconvincing. We have also seen that there are social costs as well as benefits to trade secrecy. Ordinarily one would balance expected costs and benefits, but in this case, we simply do not have enough empirical information to predict consequences with sufficient confidence to be able to compare expected costs and benefits.

Subpart A elaborates a bit more on the problem of empirical uncertainty in the trade secret setting. Subpart B discusses the possibility of dealing with the problem by deferring to the legislative process or the common law or by using analogy. Subpart C concludes by explaining why the optimal response to empirical uncertainty in the trade secret field is to abolish special legal protection for trade secrets rather than maintain the status quo.

A. A Closer Look at the Problem of Empirical Uncertainty

Predictions are usually made in settings plagued by uncertainty. In most cases, we can identify a range of possible outcomes; assign rough probabilities and values to each; and assess social benefits and costs in an approximate way by relying on available empirics, anecdotal evidence, rough intuition, and formal models. As we acquire more information, we refine our predictions and improve our social-welfare assessments.

Trade secret law is different. Predicting the effects of any system of trade secret law is an extremely complex and highly uncertain undertaking. It is relatively easy to identify the types of consequences that count (for example, incentives to create, incentives to use self-help, incentives to access the patent system, incentives to invest in litigation, and so on). But it is extremely difficult to determine the magnitude of any effects and in some cases the direction as well. These factors depend not only on how

149. Indeed, the use of property language evokes the *International News Service v. Associated Press* misappropriation tort, which does not depend on secrecy. *See* Int'l News Serv. v. Associated Press, 248 U.S. 215, 240 (1918).

firms react to trade secrecy, but also how trade secrecy interacts with patent, copyright, and other IP laws. They also depend on complex strategic responses to the creation of a litigation option and the equally complicated dynamics of the litigation process itself.

I am not aware of any empirical studies that are sufficiently reliable and relevant to support even rough predictions. Moreover, anecdote, formal analysis, and intuition cut both ways. They can be used to support a conclusion that costs exceed benefits or that benefits exceed costs—and neither position is clearly more compelling than the other.[150] Trade secret scholarship reflects this indeterminacy. Defenders focus on potential benefits, make weakly supported claims about their magnitude, and largely ignore or downplay costs. Similarly, critics focus on costs and downplay benefits. What is missing is an effort to evaluate and compare benefits and costs in a careful, systematic, and serious way.

A strict Bayesian might object at this point that as long as it is possible to make initial estimates of probabilities and magnitudes for possible outcomes, one can update those estimates as more information is obtained.[151] Therefore, it is always possible to balance costs and benefits. There might be disagreement about what the data shows, but that sort of disagreement is quite common and hardly limited to trade secret law. There might also be disagreement about the normative stakes, but that kind of disagreement is independent of empirics.

Even if this Bayesian account is correct, it does not eliminate the problem. Disagreement about data implications varies in scope and importance depending on the quality and quantity of empirical evidence. Given this, it is reasonable to require a threshold level of confidence before using a prediction to support a proposed law. Viewed this way, my claim is that the empirical basis for protecting commercially valuable trade secrets is insufficient to support predictions at a reasonable confidence level.[152]

It is true that empirical uncertainty plagues much of IP, including the core fields of copyright and patent.[153] For two reasons, however, I believe

---

150. It is conceivable that expected benefits might just equal expected costs, but that is highly unlikely and not what I am claiming here. The point is rather that empirics are too thin to support a conclusion that benefits equal, exceed, or fall below costs. There might well be situations involving non-actuarial risks, where we simply cannot predict what will happen. In such cases, we might assign equal probabilities to all contingencies, but doing so simply expresses our lack of information.

151. Bayesian decision making is not the only way to make decisions. Still, the alternatives are only as good as their empirical inputs. *See generally* JOSÉ M. BERNARDO & ADRIAN F.M. SMITH, BAYESIAN THEORY 443–88 (2000) (describing some non-Bayesian decision-making theories).

152. Obviously, the confidence level itself must be justified.

153. *See* George L. Priest, *What Economists Can Tell Lawyers About Intellectual Property: Comment on Cheung*, *in* 8 RESEARCH IN LAW & ECONOMICS 19, 22–23 (John Palmer & Richard O. Zerbe, Jr. eds., 1986) (arguing that the ability of economists to draw conclusions about welfare

the situation is more serious for trade secrecy than for copyright and patent. First, there is a well-developed quasi-public goods theory that explains why some special form of regulation is necessary to incentivize IP production.[154] This theory does not necessarily support exclusive property rights. But it gives at least a prima facie reason to believe that some set of property rights along the general lines of copyright and patent *might* be optimal. By contrast, there is no reason, even a prima facie one, to be confident that adding an independent body of trade secret law to the rest of the IP mix will improve social welfare beyond what copyright and patent already provide.[155]

Second, there is at least a colorable reason to believe that some form of copyright and patent law can be justified on nonconsequentialist moral grounds as well.[156] This is important because, at least in theory, a nonconsequentialist justification does not depend on predicting effects and is therefore immune from the problem of limited empirics.[157] However, I am not convinced that there is any sensible, nonconsequentialist moral justification for an independent body of trade secret law. Thus, trade secrecy must stand or fall exclusively on consequentialist grounds and that requires confidence in predictions.

B. Possible Strategies for Dealing with the Problem

1. Defer to the Legislature.—One might respond to this problem by deferring to the legislature to resolve the uncertainty. This approach applies, of course, only when an IP law is enacted in statutory form. This is true for copyright and patent. It is also true for trade secret law in the roughly forty-eight states that have adopted some form of the UTSA. But there is a difference between trade secret statutes and the federal Copyright and Patent Acts that affects the viability of this strategy.

---

effects is also plagued by lack of normative consensus on the optimal scope of IP protection).

154. *See, e.g.*, LANDES & POSNER, *supra* note 13, at 13–16. This is, of course, the familiar argument that the market cannot produce an optimal amount of intellectual creation without the creator having legally enforced exclusivity or receiving some form of subsidy to cover fixed creation costs.

155. And I take it as obvious that if a property rights regime is optimal, the IP regime would certainly include the core rights of copyright and patent, and trade secret law would at best complement those core rights.

156. *See, e.g.*, ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 13–20 (2012) (drawing on Kant, Locke, and Rawls to construct the normative foundations of IP law).

157. I say "in theory" because, in practice, we cannot entirely ignore social costs even when legal rights are justified on nonconsequentialist grounds. However, the existence of a nonconsequentialist justification supports putting the burden on those who would impose limits to demonstrate that the social costs are severe enough to justify limits. In any event, empirical uncertainty should be much less troubling for a nonconsequentialist approach.

Congress crafted the Copyright and Patent Acts with explicit attention to competing policies and interests.[158] State trade secret statutes, in contrast, are based on a model act drafted by an unofficial body, the National Conference of Commissioners on Uniform State Laws (NCCUSL).[159] The NCCUSL set out to codify the best version of then-extant common law.[160] Rather than systematically overhauling trade secret law, the NCCUSL drafters were primarily interested in achieving uniformity, preserving trade secrecy in the face of potential federal preemption, and codifying the best of the then-existing state common law rules with some improvements.[161] Indeed, it appears that the common law continues to exert an influence over trade secret law even in those jurisdictions that have adopted the UTSA.[162]

The significance of this distinction depends, of course, on the reason for deferring to the legislative process. One reason has to do with democratic process values. On this view, statutory trade secret law is justified simply because it was adopted by a representative and democratically accountable legislature. To be sure, this process-based argument must somehow deal with the public-choice dynamics of the legislative process, but it has a more serious shortcoming. While it supports an obligation to obey the law, it says nothing about the substantive merits of the law that is adopted.

There is, however, another reason to defer that is more promising. One might accept statutory trade secret law because one believes that the legislative process has built-in features that make it well suited to resolving empirical uncertainty in a sensible way. Of course, one needs a theory to explain why the legislature is good at doing this despite those pesky public choice problems. Such a theory might focus, for example, on features of the process that encourage the production and presentation of data and perhaps decision-making advantages, if any, that inhere in having many legislators engage and discuss the same empirical problems. One point

158. *See generally* 1 DONALD S. CHISUM, CHISUM ON PATENTS OV (2013) (outlining the considerations Congress took into account when enacting the Patent Act); 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT OV (2013) (outlining the considerations Congress took into account when enacting the Copyright Act).

159. *See generally* Sharon K. Sandeen, *The Evolution of Trade Secret Law and Why Courts Commit Error When They Do Not Follow the Uniform Trade Secrets Act*, 33 HAMLINE L. REV. 493, 502–21 (2010) (describing the history of the UTSA).

160. *Id.* at 520, 541.

161. *See id.* at 502–20 (describing the motivations of the UTSA drafting committee in promulgating a uniform trade secret law). Indeed, the NCCUSL must have had a strong incentive not to change trade secret law too much since the success of its project depended on state legislative adoption.

162. *See* Michael Risch, *An Empirical Look at Trade Secret Law's Shift from Common to Statutory Law*, *in* INTELLECTUAL PROPERTY AND THE COMMON LAW 151, 173–74 (Shyamkrishna Balganesh ed., 2013) (finding significant reliance on the common law in UTSA jurisdictions, but not necessarily in a way that displaces the UTSA).

stands out. Whatever the theory is, it surely must matter whether the legislature actually focused on data and deliberated on its implications. This might be the case for congressional adoption of the Copyright and Patent Acts, but it seems much less likely for state adoption of trade secret statutes given their genesis in the UTSA and ultimately in the common law.

2. Defer to the Common Law.—Rather than turning to the legislative process to solve the problem of empirical uncertainty, one might instead rely on the common law. I have in mind here the common law efficiency hypothesis, which supposes that the incremental process of common law evolution tends to produce efficient rules over the long run.[163] If this is correct, then it provides a reason to believe that trade secret law, as a common law tort, is efficient.

I discussed this argument in my 1998 article. There I gave several reasons why the common law efficiency hypothesis cannot save trade secret law.[164] First, the theory itself has analytic problems; it is not at all clear that it works in the way its proponents claim.[165] Second, even if it works in general, it does not fit the history of trade secret law. Modern trade secret law is more likely a result of path dependence and lock-in than emerging common law efficiency.[166] Third, the common law efficiency hypothesis imagines a slow and incremental process of case-by-case development. Yet the roughly 130 year history of modern trade secret law is about half the time of the common law fields usually cited by the theory's proponents.

---

163. *See, e.g.*, RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 22.7 (9th ed. 2014) (discussing how inefficient rules will be litigated more frequently than efficient ones, increasing the likelihood they will be replaced with more efficient rules).

164. Bone, *A New Look*, *supra* note 3, at 261 & nn.91–92.

165. *See, e.g.*, Robert Cooter & Lewis Kornhauser, *Can Litigation Improve the Law Without the Help of Judges?*, 9 J. LEGAL STUD. 139, 140 (1980) (concluding that the common law efficiency hypothesis does not support the idea that the legal system will blindly evolve to the best state or continuously improve itself).

166. The rules of trade secret law took shape during the late nineteenth century, when they were justified by a natural law theory and a formalistic approach to property rights. *See* Bone, *A New Look*, *supra* note 3, at 251–59 (discussing the influence of natural law on the development of trade secret law in the nineteenth century); Bone, *Trade Secrecy*, *supra* note 3, at 49–51 (describing how early requirements regarding reasonable secrecy precautions stemmed from natural law principles). The core rules created at that time were then fixed in—it might be more accurate to say fossilized by—the First Restatement of Torts published in 1939. The Restatement tracked late nineteenth- and early twentieth-century precedents rather closely without carefully considering whether the rules made sense on functional grounds. *See, e.g.*, Bone, *Trade Secrecy*, *supra* note 3, at 54 (noting how the Restatement drafters simply tracked the precedent on reasonable secrecy precautions without considering it critically). Judges, many of whom were confused about trade secret law at the time, quickly seized on the Restatement's formulation. As a result, the core rules of trade secret law remain intact even though the natural rights theory that originally supported them has long been abandoned. It is still possible, of course, that the late nineteenth century rules survived because they are efficient, but this is very unlikely in view of this history.

3. Rely on Analogies to More Settled Legal Fields.—A third possible strategy for coping with empirical uncertainty in one field of law is to draw a connection to another, more settled field of law. This is one way to understand what Professor Lemley is doing when he argues that trade secrecy is best understood as a type of intellectual property law rather than a branch of torts, contracts, or ordinary property.[167] He might be trying to borrow the confidence many people have in more conventional forms of IP law to shore up confidence in trade secret law. In other words, if trade secrecy is just another type of IP law and if the more familiar forms of IP are well accepted despite empirical uncertainty, then perhaps trade secret law should be accepted too. More generally, if an empirically shaky area of law is similar enough to another that is more secure, perhaps it is reasonable to suppose that the shaky area might have support as well.

Whatever the merits of this strategy in general, it works for trade secrecy only if the reasons why more familiar forms of IP law are accepted despite limited empirics are also good reasons to accept trade secrecy. The reasons why copyright, patent, and the like are generally accepted, I believe, have to do with a strong sense that some kind of incentive to innovation is required and the intuitive appeal of moral justifications for author and inventor control. However, these reasons do not readily carry over to trade secrecy. The creation of copyright and patent responds to the general incentive problem, and even if trade secrecy adds marginally to incentives, the case for it is much weaker once copyright and patent are already in place. Furthermore, the moral justifications that arguably support copyright and maybe patent do not apply, or at least not as strongly, in the trade secrecy context.

C. Implications for Trade Secret Law

This analysis has several important implications for trade secret doctrine, and I discussed some of these in my 1998 article.[168] One implication is that we should not expand liability by recognizing new types of improper means beyond breach of a preexisting duty and violation of independent legal norms.[169] In addition, we should treat the violation of an independent norm, such as trespass, fraud, and the like, as a liability trigger only when protecting the trade secret actually advances the policies served

---

167. *See supra* note 45 and accompanying text. One might also see Professor Claeys's effort to anchor trade secrecy in property as a similar strategy. *See* Claeys, *Private Law Theory*, *supra* note 45, at 32–34 (arguing that trade secrecy is based in natural property rights); Claeys, *Usufructuary Paradigm*, *supra* note 45, at 420–21 (contending that trade secrets are usufructuary property rights). But Claeys relies mainly on a deontological theory—though he does offer some utilitarian arguments—so uncertainty about consequences is not as serious a concern for him.

168. *See* Bone, *A New Look*, *supra* note 3, at 296–304 (proposing reforms to limit the scope of trade secret law).

169. *Id.* at 297–98.

by the independent norm.[170] And courts should be careful about imposing liability on quasi-contractual grounds in the absence of an actual contract, express or implied.[171] More generally, those who make and apply trade secret law should view trade secret cases as only breach of contract cases, fraud cases, trespass cases, and so on and not as opportunities to promote incentives to create, prevent wasteful arms races, protect privacy rights, and the like.

Some of these concrete implications are simply a matter of not extending trade secret law beyond its current limits. Others, however, involve reshaping the law and to some extent cutting back its scope. Someone might object that it does not make sense to reshape the law when we lack confidence about whether the changes are socially desirable, especially when the law has been around for nearly a century and a half. Or at least those who propose altering the trade secrecy status quo should have the burden to show that the alterations are justified.

There is some merit to this position. Changing existing trade secret law introduces new risks and there are practical reasons to be risk averse about major law reform. However, the changes I propose are not drastic ones. Trade secrets would still be protected by other laws, such as contract and tort in appropriate cases. Also, ordinary forms of criminal law, such as laws against burglary, would continue to provide some deterrence.

Furthermore, eliminating special protection for trade secrets beyond that already afforded by other laws will have the benefit of forcing careful consideration of the policy case for extending protection. Maintaining the status quo, on the other hand, tends to breed complacency.

In addition, eliminating special protection might be justified under the precautionary principle for coping with uncertainty, at least as framed in maximin terms.[172] According to the maximin strategy, one should choose the option that has the least bad worst-case scenario.[173] For trade secret law, the most serious negative consequences have to do, I believe, with potential effects on innovation incentives, and therefore the worst-case scenarios are "worst" insofar as they involve the most serious impairment of these incentives. The question then is which of the two alternatives—

---

170. *Id.* at 298–99.

171. *Id.* at 300.

172. *See* Daniel A. Farber, *Uncertainty*, 99 GEO. L.J. 901, 914–19 (2011) (describing the precautionary principle and applying it to catastrophic losses where the risk of occurrence is highly uncertain); Stephen M. Gardiner, *A Core Precautionary Principle*, 14 J. POL. PHIL. 33, 45–54 (2006) (constructing and defending a "Rawlsian core precautionary principle" for use in environmental policymaking). There are variations on this principle, such as α-maximin, which calls for taking an α-weighted combination of the best and worst case scenarios under each option. *See* Farber, *supra*, at 929–33 (describing an α-precautionary principle based on α-maximin).

173. *See* Farber, *supra* note 172, at 919 (defining maximin as the selection of a "strategy that has the *least bad* worst case outcome").

maintaining the status quo, or reshaping and limiting trade secret law—is associated with the worst worst-case scenario, defined in this way.

To answer this question, first note that there is a serious possibility that the status quo substantially impedes downstream innovation by encouraging secrecy and thus blocking the diffusion of information. Indeed, as we have seen, trade secrecy's commitment to secrecy flies in the face of the general policy in favor of public disclosure. Compare this to the worst-case scenario under the alternative of a limited trade secrecy regime. With less trade secret protection, upstream incentives could be impaired if firms invest less in innovation as a result. However, these firms will still have copyright and patent, and they can still protect information not within the scope of copyright or patent by relying on contract and other legal theories. Thus, it seems to me that the worst-case scenario with the status quo might well be worse than the worst-case scenario with changes.

I do not mean this to be a rigorous analysis. There is certainly room to dispute my description of the worst cases. Moreover, the maximin precautionary principle is controversial and problematic in some ways. In fact, some commentators reject it outright, at least as applied to choices that do not involve catastrophic downside risks.[174] But this brief discussion at least suggests how to make a case for limiting trade secret law: the worst-case scenario if trade secret law is limited might be less bad than the worst-case scenario if the status quo is maintained.

Finally, I strongly suspect that special protection for trade secrets generates more costs than benefits. I base my suspicion on the fact that trade secrecy is secondary to copyright and patent, which already give quite a lot of protection. I also base my suspicion on the fact that trade secret law emerged in a formalistic world of natural property rights and has never managed entirely to escape its roots.

Conclusion

None of this analysis means that we should abolish special protection for trade secrets right away. There are transition costs to consider. Also, there are practical reasons why changing trade secret law will be difficult to do. Powerful lobbying groups are likely to oppose change along the lines I recommend. Moreover, in those few states that still rely on the common law, one might expect firms adversely affected by change to lobby the legislature to adopt a statute offering broader protection.

Still, it is important to be clear about the normative foundations of trade secrecy. Only with a clear grasp of the relevant policies can we know which factors need more empirical study and which of those factors should be given research priority. It might be difficult to implement an optimal

174. *See id.* at 916–19 (describing the three main critiques of the precautionary principle).

trade secret law, but with a firmer grasp of the normative stakes, we will at least know how existing law falls short and how it can be improved.

* * *

Beyond the Incentive–Access Paradigm? Product Differentiation & Copyright Revisited

Oren Bracha* & Talha Syed**

INTRODUCTION 1842
I. THE ECONOMICS OF COPYRIGHT POLICY AND MONOPOLISTIC COMPETITION 1848
A. IP Policy: The Supramarginal–Inframarginal Framework 1848
1. *The Problem: Nonexcludability, Not Public Goods* 1849
2. *The Problem with the Solution: Property, Not Monopoly* 1850
3. *Trade-offs: Across, Not Within, Innovations* 1854
4. *Refining the Trade-offs* 1856
5. *Summary* 1858
B. The Impact of Product Differentiation on Copyright-Policy Analysis 1859
1. *Price and Deadweight Loss* 1861
2. *Total Fixed Cost* 1864
3. *Variety* 1864
4. *Copyright as a Differentiated-Competition Lever* 1865
II. PRODUCT DIFFERENTIATION AND THE PARAMETERS OF COPYRIGHT PROTECTION 1866
A. Inclusive, Intense, & Narrow 1867
1. *Summary* 1867
2. *Policy Gaps and Conflicts* 1872
a. *Price Competition: How Much Benefit at What Cost?* 1872
b. *The Declining Benefits of Added Variety* 1876
3. *Doctrinal Difficulties.* 1879
4. *Administrability Considerations* 1881
B. Weak(er) and Broad 1883
1. *Summary* 1883
2. *Discounting the Benefit of Increased Incentives* 1887
3. *Copyright as a Restraint on Demand Diversion* 1890
a. *Doctrinal Obstacles* 1893
b. *Theoretical Concerns* 1898
C. Taking Stock 1904
III. SOME MODEST PROPOSALS 1905
A. Reining in the Derivative-Works Right 1906
B. Originality as Novelty 1910
C. Trimmed Copyright for Derivatives 1915

* Howrey LLP and Arnold, White & Durkee Centennial Professor of Law, University of Texas School of Law.
** Assistant Professor of Law, University of California at Berkeley Law.

D. Overall Weaker Protection 1918
CONCLUSION 1918

Introduction

There is a new kid on the block of copyright-policy analysis. The incorporation of insights from "product differentiation" theory is arguably the most important development in the economic analysis of copyright in recent years.[1] According to its most ambitious proponents, this approach provides a superior theoretical alternative to the traditional incentive–access framework, one that shows concerns over the "monopoly power" conferred by intellectual property rights are often misplaced.[2] Moreover, it is heralded as offering a resolution for what has heretofore been taken to be an intractable trade-off inherent in copyright—the tension between incentives and access. On this view, product differentiation theory recommends, counterintuitively, that both increased incentives *and* increased access can and should be achieved primarily by strengthening copyright protection.[3] More modestly, others suggest that product differentiation theory simply supplements the traditional economic analysis of copyright, by providing a better account of certain features of copyright doctrine. In particular, the theory is argued to provide a firmer foundation for a strong derivative works right, which has been difficult to explain or justify under traditional analysis.[4]

---

1. *See* Michael Abramowicz, *A New Uneasy Case for Copyright*, 79 GEO. WASH. L. REV. 1644, 1647 (2011) [hereinafter Abramowicz, *Uneasy Case for Copyright*] (assessing "a wide range of copyright doctrines to determine how well they accord with the new insights learned from the economic literature on product differentiation"); Michael Abramowicz, *A Theory of Copyright's Derivative Right and Related Doctrines*, 90 MINN. L. REV. 317, 324 (2005) [hereinafter Abramowicz, *Copyright's Derivative Right*] (applying insights from product differentiation theory to derivative rights); Michael Abramowicz, *An Industrial Organization Approach to Copyright Law*, 46 WM. & MARY L. REV. 33, 38 (2004) [hereinafter Abramowicz, *An Industrial Organization Approach*] (using the economics of product differentiation to "elaborate[] the insight that marginal copyrighted works are not likely to produce large contributions to social welfare"); Christopher S. Yoo, *Copyright and Product Differentiation*, 79 N.Y.U. L. REV. 212, 221 (2004) ("The differentiated products approach provides a theoretical explanation for features of markets for copyrighted works that appeared to be internal contradictions under previous theories.").

2. *See* Yoo, *supra* note 1, at 220 (suggesting that product differentiation theory is "a different approach to imperfect competition that . . . better captures the key characteristics of markets for copyrighted works").

3. *Id.* at 251 (asserting that the insights of product differentiation theory "falsify the claim that simultaneous promotion of access and incentives is impossible and that copyright necessarily devolves into a tradeoff between the two").

4. *See* Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 110 (asserting that "consideration of demand diversion and rent dissipation adds another wrinkle" to the standard incentive–access analysis).

That traditional analysis is grounded in a framework known as the incentive–access paradigm.[5] Within that framework, copyright is one possible solution to the public-policy problem generated by the fact that informational works are often costly to create but inexpensive to copy.[6] Where this is so, the creators of such works may not be able to appropriate enough of the works' social value, through various competitive advantages from innovation often available in markets, to recoup their costs of development.[7] Copyright steps in to confer upon creators legal exclusionary entitlements, which empower them to charge a price for accessing the works sufficient to recover their innovation costs. These entitlements thus allow the copyright owner to internalize a substantial part of the social value of the work, thereby boosting the incentive for, or enabling recovery of the costs of, creation and publication. This social benefit of copyright comes, however, with a price tag. Legal exclusivity, at least in the absence of the unrealistic possibility of (marginally costless) perfect price discrimination,[8] leads to inefficient pricing strategies that generate deadweight

---

5. *See, e.g.*, William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989) ("Striking the correct balance between access and incentives is the central problem in copyright law."); Glynn S. Lunney, Jr., *Reexamining Copyright's Incentives-Access Paradigm*, 49 VAND. L. REV. 483, 485–86 (1996) (labeling as the "incentives-access paradigm" the "enduring and widespread" reliance by "Congress, courts, and commentators . . . on [the] incentives-access balance in defining some of copyright's most basic parameters, including the prerequisites for copyright protection, the general scope of protection, and specific limitations on protection" (citations omitted)).

6. For alternative solutions to the innovation policy problem raised by informational works, see WILLIAM W. FISHER III, PROMISES TO KEEP: TECHNOLOGY, LAW, AND THE FUTURE OF ENTERTAINMENT 200–02 (2004).

7. *See, e.g.*, Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 299–302 (1970) (explaining how various nonexclusionary competitive advantages from innovation may be available in certain markets to provide substantial returns for innovators).

8. Perfect price discrimination is the ability to charge each consumer exactly the price the consumer is willing and able to pay for the relevant good. Wendy J. Gordon, *Intellectual Property as Price Discrimination: Implications for Contract*, 73 CHI.-KENT L. REV. 1367, 1368 n.3 (1998). Were it possible, such price discrimination would eliminate the problem of deadweight loss by allowing all consumer demand above marginal cost to be satisfied. However, such a scheme is not currently a feasible option in real markets, due to prohibitive informational requirements and transaction and enforcement costs. Indeed, even if possible it still probably would not fully eliminate deadweight loss, since the costs of implementing the scheme would themselves need to be recouped. *See* Yochai Benkler, *An Unhurried View of Private Ordering in Information Transactions*, 53 VAND. L. REV. 2063, 2072–73 (2000) (describing the high costs of implementing price discrimination). And where such costs are recovered through unit markups, these may continue to price out some consumers who are nevertheless willing and able to pay the marginal cost of disseminating the informational work. It is, however, feasible in some contexts to employ various strategies of partial price discrimination, based on charging distinct uniform prices to different subgroups of consumers. Such partial schemes are becoming increasingly available and ever more fine-grained as technology reducing their costs of deployment develops. The economic and other social effects of various partial price discrimination schemes, their desirability as a matter of policy, and the extent to which legal doctrine should encourage or discourage their use is the subject of ongoing debate in legal scholarship. *See generally, e.g.*,

loss, meaning some consumers willing and able to pay the marginal cost of distributing the work are nevertheless excluded from accessing it.[9] Analyzed from this perspective, copyright policy becomes a complex and often elusive balancing act between the relative social costs and benefits of specific institutional details of copyright law.

This traditional understanding has provided the dominant framework for economic analysis of copyright during the past five decades and, in a looser form, has pervaded American copyright thought and practice for much longer.[10] It has supplied a method for coherent, structured thinking about copyright-policy questions, generated an abundance of scholarly literature, and left its mark on judicial opinions and other forms of legal

---

James Boyle, *Cruel, Mean, or Lavish? Economic Analysis, Price Discrimination and Digital Intellectual Property*, 53 VAND. L. REV. 2007 (2000); Julie E. Cohen, *Copyright and the Perfect Curve*, 53 VAND. L. REV. 1799 (2000); William W. Fisher III, *Property and Contract on the Internet*, 73 CHI.-KENT L. REV. 1203 (1998); William W. Fisher III, *When Should We Permit Differential Pricing of Information?*, 55 UCLA L. REV. 1 (2007); Gordon, *supra*; Glynn S. Lunney Jr., *Copyright's Price Discrimination Panacea*, 21 HARV. J.L. & TECH. 387 (2008); Michael J. Meurer, *Copyright Law and Price Discrimination*, 23 CARDOZO L. REV. 55 (2001). Our analysis brackets the possibility of partial price discrimination.

9. *See, e.g.*, William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659, 1702 (1988) (observing that "consumers who value the work at more than its marginal cost but less than its monopoly price will not buy it," resulting in deadweight loss); Lunney, *supra* note 5, at 497–98 ("[B]roadening copyright imposes a 'deadweight loss,' measured by the combined loss in consumer and producer surplus associated with the sales lost as a result of the higher, more monopolistic price."). Scholars typically divide the social cost of intellectual property protection into a static and a dynamic cost. The static cost refers to the allocative inefficiency of an informational work generated by supramarginal prices in a market for consumptive uses. The dynamic cost refers to the burdens imposed by copyright restrictions on the creation of future informational works, since existing works often serve as inputs for subsequent creation. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 66–70 (2003) (describing copyright's "cost of expression"); Christopher A. Cotropia & James Gibson, *The Upside of Intellectual Property's Downside*, 57 UCLA L. REV. 921, 924 (2010) (distinguishing "the static cost of constricted production and the dynamic cost of constricted innovation"); Landes & Posner, *supra* note 5, at 332 ("Creating a new work typically involves borrowing or building on material from a prior body of works . . . ."); Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEXAS L. REV. 989, 996–99 (1997) (describing the static and dynamic costs of intellectual property rights); Lunney, *supra* note 5, at 495 (suggesting that copyright "limits access to the resulting work in two senses"). To illustrate, copyright protection over a novel may generate two harmful effects: inefficient levels of access by potential readers of the novel, and inefficient levels of access by potential creators interested in using protected elements of the novel for creating their own subsequent works, resulting in reduced levels of expressive works. Distinguishing these two elements of the social cost of intellectual property rights is often useful. It highlights the fact that IP rights affect both consumption and subsequent creation, and draws attention to the possibly different ways this cost may be magnified or attenuated in each of these respects. For our purposes, however, it is sufficient to refer simply to "the" social cost of IP in the form of reduced access (or "deadweight loss"), without distinguishing between effects on consumptive uses and those on subsequent creation.

10. *See* Lunney, *supra* note 5, at 485–86 (noting that the incentives–access paradigm has been employed for the past three centuries, and detailing instances in the past fifty years where "Congress, courts, and commentators" have relied on that approach).

analysis.[11] At the same time, however, the framework has often proved hard to apply, generated somewhat conflicting theoretical arguments, and has been plagued by a host of empirical uncertainties requiring massive, and as yet unavailable, information for their resolution.[12]

Recently the economic analysis of copyright in legal scholarship has taken a new turn. Legal scholars—most notably Christopher Yoo and Michael Abramowicz in a series of pioneering articles[13]—have begun to apply to copyright insights from a well-established branch of economic analysis known as "monopolistic competition" or product differentiation theory.[14] While the underlying economic models may be complex, the gist of the theory as applied to copyright is straightforward: expressive works, even when protected by the legal exclusivity characteristic of copyright, are subject to competition from other expressive works which constitute partial substitutes for them. The latest James Bond film, for example, competes

---

11. *See id.* (explaining that Congress, courts, and commentators have relied on the traditional understanding in defining "basic parameters" of copyright law, and noting that the understanding enjoys "enduring and widespread popularity").

12. *See, e.g.*, William Fisher, *Theories of Intellectual Property*, *in* NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 180–81 (Stephen R. Munzer ed., 2001) ("The truth is that we don't have enough information . . . . Empirical work has . . . failed to answer the ultimate question of whether the stimulus to innovation is worth its costs. With respect to forms of intellectual-property protection other than patents, we know even less.") (citation omitted); George L. Priest, *What Economists Can Tell Lawyers About Intellectual Property: Comment on Cheung*, in 8 RESEARCH IN LAW AND ECONOMICS 19, 21 (John Palmer & Richard O. Zerbe, Jr. eds., 1986) ("Cheung has demonstrated quite persuasively that, in the current state of knowledge, economists know almost nothing about the effect on social welfare of the patent system or of other systems of intellectual property.").

13. *See supra* note 1. Earlier instances of the application of monopolistic competition theory to copyright can be found in the work of Glynn Lunney, Jr. and Michael Meurer. These, however, are mainly brief references, rather than full explorations of the implication of the economic theory to copyright law and policy. *See* Lunney, *supra* note 5, at 495 & n.32, 497 & n.43, 520, 582–83; Meurer, *supra* note 8, at 96–97.

14. Although the origins of the theory go further back, it is usually seen as having emerged in the 1920s and 1930s in the work of Edward Chamberlin, Joan Robinson, and Harold Hotelling. *See* EDWARD HASTINGS CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION 177–91 (8th ed. 1962) (introducing the theory of monopolistic competition, where sellers have an absolute monopoly over their own products, yet are subject to the competition of more or less imperfect substitutes); JOAN ROBINSON, THE ECONOMICS OF IMPERFECT COMPETITION 85–129 (2d ed. 1969) (laying out a model of competition between firms, each of which had some monopoly power); Harold Hotelling, *Stability in Competition*, 39 ECON. J. 41, 44 (1929) ("Between the perfect competition and monopoly of theory lie the actual cases."). Since then, the theory has been developed and extended in a number of directions. *See generally* JOHN BEATH & YANNIS KATSOULACOS, THE ECONOMIC THEORY OF PRODUCT DIFFERENTIATION (1991) (discussing the implications of product differentiation for market structure and power); DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION 200–44 (4th ed. 2005) (examining models of monopolistic competition and the effect of product differentiation on social welfare); B. Curtis Eaton & Richard G. Lipsey, *Product Differentiation*, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 723, 731 (Richard Schmalensee & Robert D. Willig eds., 1989) (exploring Chamberlin's model). On the early origins of monopolistic competition theory, see generally JAN KEPPLER, MONOPOLISTIC COMPETITION THEORY: ORIGINS, RESULTS, AND IMPLICATIONS (1994).

with many other action–thriller films, and indeed with films of other genres and styles, that offer various viewers different levels of substitution for it. From this intuitive and simple premise follow a host of powerful implications for the economic analysis of copyright. The power of the theory is not simply in putting forth the insight of partial substitutions—an observation that is not new in copyright-policy analysis—but rather in offering a structured way for understanding the economic implications of this phenomenon. Copyright, the theory teaches us, creates neither a fully competitive market nor, as often assumed under the traditional model, a monopoly, but rather a market model significantly different from either.

Although still a relative newcomer, this approach is gathering force and influence within copyright scholarship. Product differentiation theory is cited frequently and often invoked to challenge deeply rooted assumptions about copyright law and its economic effects. Thus, the theory has been cited to support the proposition that, contrary to a common assumption, copyright does not necessarily confer market power.[15] Similarly, it has been invoked as the basis for the claim that copyright, except in rare cases, does not give rise to monopoly pricing and therefore does not create deadweight loss.[16]

This Article reevaluates product differentiation theory as applied to copyright law. Such a reassessment is timely as the theory works its way into the mainstream of copyright scholarship, with its premises and conclusions on their way to becoming part of the conventional wisdom. A reexamination of these premises and conclusions is particularly important in light of several drawbacks and worrying tendencies in existing theoretical discussions. First, the reception of product differentiation theory into

---

15. *See, e.g.*, Shubha Ghosh, *Decoding and Recoding Natural Monopoly, Deregulation, and Intellectual Property*, 2008 U. ILL. L. REV. 1125, 1171 (noting that "[t]he owner of intellectual property does not necessarily have market power"); John A. Rothchild, *Economic Analysis of Technological Protection Measures*, 84 OR. L. REV. 489, 540 (2005) (suggesting that occasionally copyrighted "goods will have such close substitutes that sellers will have no significant market power"); Sara K. Stadler, *Copyright as Trade Regulation*, 155 U. PA. L. REV. 899, 922 (2007) (explaining that readily available substitutes for copyrighted works means most "copyrights do not create market power at all").

16. *See* Mark A. Lemley, *A Cautious Defense of Intellectual Oligopoly with Fringe Competition*, 5 REV. L. & ECON. 1025, 1026 (2009) (arguing that the availability of substitutions means "that we can't assume that IP rights generally impose deadweight losses on society"). This may have been just careless phrasing by Lemley, who elsewhere acknowledges that IP rights enable owners "to raise the price of that work above the marginal cost of reproducing it." Lemley, *supra* note 9, at 996. To say that IP rights work by enabling supramarginal pricing, but that in doing so they may create no deadweight loss, is contradictory because, in the absence of (marginally costless) perfect price discrimination, supramarginal pricing necessarily creates deadweight loss. Whether or not it is simply careless phrasing, however, it is illustrative of mistaken or misleading views—regarding the relationship between IP rights, market/monopoly power, and inefficiency—that have long circulated in both the IP and antitrust literature and which product differentiation theory, in its current state of reception, tends to reinforce. *See infra* notes 31–32, 54 and accompanying text.

copyright has been marred, to a considerable extent, by the lingering hold of persistent ambiguities and misunderstandings regarding the basic economics of copyright. These include: an erroneous or obscure concept of the roles played by the two public-goods features of information goods in the policy analysis of intellectual property rights; a misplaced emphasis on monopoly power (or the lack thereof); and a failure to see that the central intellectual property (IP) trade-offs take place not in regard to one innovation but across different innovations. Second, partly due to these misunderstandings of the basic economic framework, existing application of product differentiation theory to copyright contains both specific inaccuracies and erroneous, general sweeping conclusions. The latter include the claim that by strengthening certain aspects of copyright protection, both incentive and access could be increased costlessly, and the assumption that strengthening protection is an effective and desirable remedy to wasteful rent-dissipation problems in copyright. Third, these flaws in applying product differentiation theory to copyright have led to policy and doctrinal recommendations that are either implausible or far outstrip what the theory can plausibly be said to show.

Our goals in this Article match these concerns. Our first purpose, undertaken in Part I, is to develop an analytic framework of "inframarginal" and "supramarginal" parameters of copyright protection, which integrates disparate strands of economic analysis of copyright into a single coherent whole. In the course of doing so we also explicate the basis for clarifying or correcting the persistent ambiguities or misunderstandings mentioned above, pertaining to the role of public-goods features of information works, the significance of "monopoly" power in IP analysis and the character of, and variations in, the central IP trade-offs. We then incorporate the insights of product differentiation theory into the analysis, showing how it supplements, rather than substitutes for, the traditional analysis, with both best integrated into a single supramarginal–inframarginal framework.

In Part II, we evaluate the specific, somewhat conflicting, copyright-policy reforms or explanations that have to date been advanced on the basis of product differentiation theory. The two main sets of proposals in existing scholarship are that an ever-increasing level of copyright protection offers the prospect of boosting incentives with no countervailing costs, and that broad reproduction and derivative-works entitlements are justified as efficient measures against over-entry by duplicative close variants of the same expressive work. We argue that against the backdrop of a proper understanding of the economics of copyright, neither of these two proposals is warranted by product differentiation theory.

Finally, in Part III we offer our own assessment of what policy prescriptions most plausibly follow from product differentiation analysis. Specifically we argue that product differentiation theory, like the traditional incentive–access framework, shows that as IP protection becomes stronger

it is more likely to result in negative net results. The main contribution of product differentiation theory is identifying new sources for this result, the most important of which is rent dissipation caused by entry of increasingly similar variants of expressive works whose supramarginal positive value progressively declines, while their duplicative cost mounts. The straightforward solution to this problem, we argue, is not to apply more of the same remedy that causes the problem to begin with—i.e., strong copyright protection—but rather to exploit the nonrivalrousness of expressive works by ratcheting down copyright protection. We evaluate three alternative possible reforms to copyright law for targeting the concern of rent dissipation: abolishing or limiting the derivative works right, creating a meaningful novelty-threshold requirement for copyright protection, and an overall trimming of the strength of copyright protection.

I. The Economics of Copyright Policy and Monopolistic Competition

We set out in this Part a general analytical framework to structure the subsequent discussion of particular doctrinal and policy recommendations. Our purpose is to integrate product differentiation theory with central dimensions of existing, nondifferentiated economic analysis of IP. Specifically, we seek to develop two sets of points: first, to establish what a relatively comprehensive economic analysis identifies as the central trade-offs involved in providing IP protection, and second, to identify what the importation of the economic theory of monopolistic competition based on product differentiation adds to copyright-policy analysis in this regard.

A. IP Policy: The Supramarginal–Inframarginal Framework

The economic analysis of IP rights, such as copyrights and patents, begins with the observation that the information goods protected by such rights exhibit the two defining features of public goods: nonexcludability and nonrivalrousness.[17] Information goods are nonexcludable to the extent that once they are distributed to some, it is difficult to prevent access to them by others. And such goods are nonrivalrous to the extent that consumption of the work by one does not degrade the ability of others to consume and enjoy it. These observations and the analysis based on them are, by now, painfully familiar to anyone versed in the literature. And yet the basic analysis is often marred by mistakes or ambiguities which then continue to infect the analysis in its further elaborations. Here we restate

17. On public goods, see generally Thomas E. Borcherding, *Competition, Exclusion, and the Optimal Supply of Public Goods*, 21 J.L. & ECON. 111 (1978); J.G. Head, *Public Goods and Public Policy*, 17 PUB. FIN. 197 (1962); Paul A. Samuelson, *The Pure Theory of Public Expenditure*, 36 REV. ECON. & STAT. 387 (1954).

the fundamental economic framework of IP rights, corrected for the mistakes and ambiguities that frequently haunt it.

1. The Problem: Nonexcludability, Not Public Goods.—IP rights are commonly described as a solution to a "public goods problem" produced either by nonrivalrousness, or by the combined effect of the two features of such goods.[18] This description, however, is both incorrect and misleading. In fact, the two features of public goods do not combine to produce a single problem, but rather pull in opposite directions. The innovation policy problem posed by informational works—for which IP rights are one possible solution—is traceable to nonexcludability alone, with nonrivalrousness playing no part. Nonexcludability contributes to the problem by factoring into the gap between the costs of innovation (i.e., initially generating the information good), and the costs and speed of imitation (i.e., replicating a good generated by another). When the costs of imitation are substantially lower than those of creation and imitators cannot be excluded from accessing the work, prices may drop to a level that prevents the creators from appropriating enough of the social value of the work to recover their development costs. Under such conditions creators will be inefficiently discouraged from creating. Nonrivalrousness has nothing to do with this problem. The same problem may occur with nonexcludable goods that are rivalrous, such as in the case of the under-incentive to invest in a common pool (like a fishery) from which others cannot be excluded.[19] Conversely, the problem would not occur were information goods excludable, no matter how nonrivalrous they may be.

To solve this problem, IP rights confer on their holder entitlements to exclude others from using, without the holder's permission, the covered informational work in certain ways for certain periods of time.[20] The grant

18. *See, e.g.*, JAMES BOYLE, SHAMANS, SOFTWARE, AND SPLEENS 41 (1996) (describing informational works as involving "public goods problems" related to nonrivalrousness); Fisher, *supra* note 12, at 169 (explaining that the two public good features of intellectual products "in combination create a danger that the creators of such products will be unable to recoup their 'costs of expression'"); Fisher, *supra* note 9, at 1700 ("[Works of intellect] can be used and enjoyed by unlimited numbers of persons without being 'used up.' It is thus difficult to deny access to such works to persons who have not paid for the right to enjoy them."); Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917, 947 (2005) ("At times, nonrivalry seems inextricably linked to nonexcludability and the associated risk of free riding." (citation omitted)); Yoo, *supra* note 1, at 214–15 (attributing the difficulty of authors to recoup to nonrivalry). Related misunderstandings include attributing the gap between the costs of innovation and those of imitation to the public-goods features of informational works and attributing low marginal costs of producing informational works to their nonrival or nonexcludable characteristics. Fisher, *supra* note 12, at 169; Landes & Posner, *supra* note 5, at 326.

19. This is commonly referred to as "the tragedy of the commons." *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244–45 (1968).

20. *E.g.*, 17 U.S.C. § 106 (2012) (granting certain exclusive rights to copyright owners).

of such rights converts what are relatively nonexcludable goods into relatively excludable ones.

It is only at this point that nonrivalrousness enters the picture, by pointing to a problem with the IP rights solution. For resources that are rivalrous in consumption, the grant of exclusionary or property rights is generally considered salutary, or at least not troubling, from an economic point of view, since preventing or excluding use by one is necessary for use by another. However, for goods that are nonrivalrous in consumption—of which informational works are a paradigm example—exclusionary rights may function inefficiently, wastefully preventing uses that would not detract from simultaneous use by others. The justification for incurring this potential inefficiency is, of course, that without it some informational works may fail to be developed in the first place. Nonrivalrousness, however, accounts for a basic imperfection or problem associated with the IP rights solution, namely its conversion of an information good from a "public" to a "toll" good.[21]

IP rights aim to address, then, not a "public goods problem" associated with informational works but an "appropriability problem." Nonexcludability contributes to the appropriability problem for which IP rights are one possible solution, while nonrivalrousness points to a problem with that solution. And from an economic point of view, the core task for IP policy is to balance the need for appropriability with the costs of underuse.

2. The Problem with the Solution: Property, Not Monopoly.—At this stage of the analysis another persistent ambiguity, even confusion, commonly appears: namely, the somewhat misguided debate over whether IP rights create "monopoly" power or are "merely" property. As just explained, the basic economic function of copyright and patent protection is to enable the creator of an informational work to charge a price for accessing that work that recoups some of the sunk costs incurred in developing it.[22] Any such price will be higher than what, in static terms, is the economically efficient price, namely the marginal cost of disseminating the work (e.g., the cost of reproducing and distributing a physical or digital embodiment of the work). And the economic value represented by all the uses of all the consumers willing and able to pay the efficient price, but not the one charged by the copyright holder, constitutes the measure of "deadweight loss" associated with that degree of copyright protection.

---

21. By contrast, one virtue of alternative innovation policies such as public funding, prizes, or commons-based approaches is that they retain the "public goods" character of informational works by using mechanisms other than excludability to enable generation of such works, thereby avoiding the deadweight loss associated with propertizing a nonrival work.

22. *See supra* section I(A)(1).

This cost associated with IP rights has been traditionally described as stemming from the conferral of monopoly power on the rights owner.[23] Defenders of broad IP rights attack the premise that monopoly power is a necessary or even common feature of IP rights.[24] Information goods, they explain, often have substitutes.[25] A novel under copyright protection, for example, has to compete with many other novels in the market. If so, there is no reason to view IP rights owners as monopolists in the sense of "fac[ing] a demand curve with a negative slope" that allows them to raise prices above competitive level without losing all customers.[26] It follows that since IP rights do not, apart from exceptional cases, confer monopolies but rather ordinary property rights, they do not involve any special cost or policy problem.

The reply from commentators less sanguine of broad IP rights is to concede that IP rights do not always create monopolies, but then rejoin that monopoly power is a matter of degree and that in some cases, the exclusionary power created by IP rights does rise to the level of monopoly.[27]

This entire debate, however, is mostly beside the point. Proper understanding of the economic framework dispels the idea that the main question is "whether the patent as monopoly is an important case that occurs frequently."[28] *Property*, not monopoly, *is* the heart of the problem.

---

23. *See, e.g.*, Fisher, *supra* note 9, at 1700 ("Granting an artist or inventor a property right in his creation may make him a monopolist . . . ."); S.J. Liebowitz, *Copyright Law, Photocopying, and Price Discrimination*, *in* RESEARCH IN LAW AND ECONOMICS, *supra* note 12, at 181, 184; Ian E. Novos & Michael Waldman, *The Effects of Increased Copyright Protection: An Analytic Approach*, 92 J. POL. ECON. 236, 243 (1984).

24. Kenneth W. Dam, *The Economic Underpinnings of Patent Law*, 23 J. LEGAL STUD. 247, 249–50 (1994); Frank H. Easterbrook, *Intellectual Property is Still Property*, 13 HARV. J.L. & PUB. POL'Y 108, 109 (1990); Edmund Kitch, *Elementary and Persistent Errors in the Economic Analysis of Intellectual Property*, 53 VAND. L. REV. 1727, 1729–38 (2000) [hereinafter Kitch, *Elementary and Persistent Errors*]; Edmund Kitch, *Patents: Monopolies or Property Rights?*, *in* RESEARCH IN LAW AND ECONOMICS, *supra* note 12, at 31, 32 [hereinafter Kitch, *Monopolies or Property*]; Douglas A. Smith, *Collective Administration of Copyright*, *in* THE COLLECTIVE ADMINISTRATION OF PATENTS AND COPYRIGHTS 137, 139 (1986). *See generally* Sven Bostyn & Nicolas Petit, Patent=Monopoly: A Legal Fiction (Dec. 31, 2013) (unpublished manuscript), *available at* http://ssrn.com/abstract=2373471.

25. Kitch, *Monopolies or Property*, *supra* note 24, at 33; Yoo, *supra* note 1, at 217–19.

26. Kitch, *Monopolies or Property*, *supra* note 24, at 32.

27. *See, e.g.*, Boyle, *supra* note 8, at 2018 ("The question of whether a monopoly exists is one that is determined by the availability of substitute goods, not the shape of the legal entitlement."); Cohen, *supra* note 8 at 1811 ("Although a copyright does not necessarily guarantee market power, many information goods lack perfectly fungible substitutes."); Fisher, *supra* note 9, at 1702–03 (stating that copyright holders' market power "var[ies] considerably," and stating that some copyright works are "considered irreplaceable," while for others "there are readily available, nearly perfect substitutes"); Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1205 n.44 (1996) ("[C]opyright gives each author at least some monopoly power, and it gives greater power to some authors than to others.").

28. Kitch, *Monopolies or Property*, *supra* note 24, at 33.

And what differentiates IP rights from other property rights in this respect is the fact that it covers nonrivalrous goods.

Two opposing but equally erroneous premises are worth identifying and disarming at this point. On the one hand, it is not necessary for their effective operation that the exclusionary rights granted by intellectual property over an informational work confer an economic "monopoly," where that is taken to mean the kind of power over price and quantity that a firm enjoys when there exist no rival substitutes for its product on the market.[29] Monopoly power in this sense may be present in some cases of IP protection, but it is neither an inherent by-product of such protection nor a necessary or sufficient condition for this protection to provide effective incentives. On the other hand, it *is* necessary for IP protection, if it is to achieve its incentive function at all, to confer some supramarginal pricing power. In the absence of any degree of pricing power, there will be no added ability to recoup the fixed costs of development and no added incentive.[30] And the effect of such pricing power—in the absence of the unrealistic case of costless, perfect price discrimination—will be some deadweight loss.[31] Supramarginal pricing power and deadweight loss, then, are necessary effects of copyright (or patent) protection.[32] In the absence of

29. The traditional formulation of "monopoly power" is itself a somewhat ill-defined concept, since any firm's product will face some downward competitive pressure on its price from alternative uses of consumer resources, whether or not such uses are seen as "substitutes." In other words, pricing power and substitutes are always best understood as matters of degree, as opposed to categorical distinctions of kind.

30. To be sure, in specific contexts efficiency will not require any added incentive. These involve cases where alternative mechanisms such as lead time, contractual arrangements, social norms, or alternative business models allow innovators to capture enough of the social value of their innovation to cover development costs (capitalized, risk-adjusted, and including expenditures on efficiently incurred failed efforts). In such cases, intellectual property rights are not justified on an incentive basis, and absent other possible justifications, there is no reason to incur any of the costs associated with them.

31. *See* Ariel Katz, *Making Sense of Nonsense: Intellectual Property, Antitrust, and Market Power*, 49 ARIZ. L. REV. 837, 873 (2007). As explained in the text, Katz is right to state that "under monopolistic competition there is always some degree of market power, in the sense of price above marginal cost" and therefore "deadweight loss always exists." *Id.* However, it is not accurate to state, as he does, that this is so because "the fact that the products are differentiated means that they are not perfect substitutes." *Id.* While the degree of differentiation may affect the level of market power, so long as the monopolistic competition model applies there is market power and deadweight loss, even if products are perfect substitutes. *See infra* text accompanying notes 30–33, 39. Similarly, the conferral of supramarginal pricing power by IP rights is not, as Katz's discussion suggests, merely a contingent claim with plausible empirical support. *See* Katz, *supra*, at 873. Rather, it is a structurally necessary feature of IP rights, unavoidable if they are to achieve their incentive function.

32. It is a separate question whether such pricing power should be taken to constitute "market power" in a technical sense relevant for antitrust law. The conventional wisdom among antitrust scholars seems to be "no," although they have remained vague as to what other sense of "market power" they have in mind, besides the common economic one of being able to raise prices above marginal cost. *See* 2B PHILLIP E. AREEDA, HERBERT HOVENKAMP & JOHN L. SOLOW, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION 138 (3rd ed. Supp. 2012) ("[M]arket power cannot be inferred, even presumptively, from the possession of

costless, perfect price discrimination, the notion of using IP rights to provide incentives without incurring deadweight loss is as conceivable as a perpetual motion machine.

To illustrate, consider the following three possible scenarios for a firm developing an expressive work—a book, a film, a song—that is potentially eligible for copyright protection:

Scenario (1): The work does not receive any copyright protection, rendering it vulnerable to uncompensated "free riding" by consumers or "corrosive" competition by replicating producers that may undermine the firm's ability to recoup its capitalized costs of development. The result: no static inefficiency from copyright barriers to access, but also no provision of the dynamic incentive to create.

Scenario (2): The firm obtains copyright protection for its work, and the work has no, or at best very imperfect, substitutes, conferring on the firm "monopoly" power over the relevant market. The firm will use its pricing power to charge a profit-maximizing markup price over marginal cost. How much total revenue is generated by the marked-up price will depend on the size of the market and the elasticity of demand for this type of good. Where the revenues generated do not exceed the sunk costs of development, they are understood as only "quasi-rents" that simply go to cover the costs of development, with the firm ultimately not realizing any supernormal returns or "economic profit." Where revenues do exceed the costs of development, then the firm realizes "rents" proper, or supernormal "monopoly" returns. Further, in the latter instance there is some amount of deadweight loss over and above that strictly necessary to generate the information work using copyright protection.

Scenario (3): Finally, consider a third case, where the firm's copyrighted work faces competition from the copyrighted product of a rival firm—suppose, for instance, that both are mystery novels competing for the summer beach-reading market. Assume that while consumers significantly prefer either novel to the next-best option vying for their entertainment dollar, between the two of them they are indifferent. Thus, neither firm enjoys a "monopoly" in the relevant market. The price effect of such a duopolistic situation is an ongoing subject of contention in economic

---

intellectual property."); HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE 154 (4th ed. 2011) ("[T]o presume market power in a product simply because it is protected by intellectual property is nonsense."); Nancy T. Gallini & Michael J. Trebilcock, *Intellectual Property Rights and Competition Policy: A Framework for the Analysis of Economic and Legal Issues*, *in* COMPETITION POLICY AND INTELLECTUAL PROPERTY RIGHTS IN THE KNOWLEDGE-BASED ECONOMY 17, 22 (Robert D. Anderson & Nancy T. Gallini eds., 1998) ("There should not be a presumption that an intellectual property right creates market power. . . . [Because] most products and processes face a large number of substitutes."); Lemley, *supra* note 9, 996 n.26 (1997) (clarifying that the pricing power created by intellectual property rights "does *not* mean that intellectual property rights automatically confer market power or create 'monopolies' in an economic or antitrust sense").

models that we will turn to shortly.[33] For present purposes, assume that one possible (but by no means necessary) pricing outcome obtains: that prices will approach their competitive level.[34] The question for our purposes is what that competitive level will be. Consider two possibilities. In one, the firms compete on price all the way down to marginal cost, thereby undermining each other's ability to recover development costs, resulting in a net loss for both. In the other, the firms price compete again, but now down only to average cost, so that each firm is able to recoup development costs and thus realize a "normal profit," but no rents, while charging a price that will incur some deadweight loss.[35] Thus, the first possibility parallels scenario (1): no deadweight loss but also no incentive benefit. The second possibility illustrates how, even in the absence of *any* technical monopoly power or its corresponding supernormal returns, the grant of copyright can result in *some* deadweight loss, and indeed must, if it is to serve its incentive function. Whether or not this pricing power necessarily conferred by copyright is best termed "market power," it does come with deadweight loss.

3. Trade-offs: Across, Not Within, Innovations.—What, one might ask, is the problem in cases where IP rights generate only enough pricing power for the innovator to recoup, meaning they enjoy merely quasi-rents rather than supernormal rents? Said quasi-rents being necessary to induce the creation of the work in the first place, they arguably should not be described as a cost, since without them we would incur the greater loss of having to forego the work altogether. This objection betrays, however, another misunderstanding of the IP framework. It assumes that the policy trade-offs associated with IP rights are internal to a specific innovation.[36] Under this assumption, little could be improved over a situation where deadweight loss is limited to that necessary for incentivizing the creation of the work. A world with a work and the minimal deadweight loss necessary to incentivize its creation is better than a world with no work at all.[37] But the

33. *See infra* note 62 and accompanying text.

34. In fact, most product differentiation models *do not* ordinarily assume that the competition between two entrants would suffice to bring prices down to competitive levels. Rather, the common assumption is that each additional entrant will bring about only a measure of price reduction. The number of entrants and the extent to which price at equilibrium will remain above the competitive level is a function of the ratio between the fixed cost of each entrant and the total available surplus in the market. *See* CARLTON & PERLOFF, *supra* note 14, at 211; Yoo, *supra* note 1, at 239.

35. We assume here, as a further simplification, that the development costs for each novel were the same.

36. *See infra* note 39 and accompanying text.

37. Sometimes an IP right that generates the minimal amount of deadweight loss required to incentivize creation could be improved upon. This happens when demand patterns allow reshaping the IP right to generate the same amount of revenue to the innovator while imposing a lower deadweight loss. Even in such cases, however, there is no tradeoff between incentive and

basic premise of this argument is misguided. The IP trade-off between incentive and access or between the value of new innovations and deadweight loss, takes place *across* different innovations, *not* internal to any one of them.

To see this, assume that the regime of IP rights at issue will, to a considerable extent, be universally or generically applicable, in the sense that a relatively standardized package of entitlements will be equivalently available for various distinct works or even classes of innovative works.[38] If so, at any given level of IP protection, some innovations or informational works will enjoy more protection than is needed for their generation, meaning that the revenues enabled by the IP-conferred pricing power will exceed the capitalized costs of development. Put another way, the share of these innovations' social value that that level of IP protection enables innovators to privately appropriate exceeds private costs of development. As a result, these innovators will enjoy supernormal returns, and there will be some unnecessary deadweight loss. Another category of innovations will enjoy (more or less) just enough protection for their generation. Finally, some socially valuable innovations may not be generated because not enough of their social value can be privately appropriated to justify the private costs of development. Although this point is often neglected or at least remains unspoken, the core trade-off at the heart of IP policy, then, is between the effect of IP rights across these different categories of innovation; the trade-off is *not* internal to a given innovation.[39]

---

deadweight loss internal to a specific innovation. Rather, the same amount of incentive is attained for a lower level of deadweight loss. *See infra* text accompanying note 39.

38. In contrast to the theoretical possibility of a regime in which each IP right is tailored to each specific work, or perhaps classes or sectors of innovation. In reality, both the patent and copyright regimes are fairly, although not absolutely, universal, in that alongside generic rules they also include some arrangements that are industry or subject-matter specific. It is commonly observed that the copyright regime is somewhat less universal than the patent regime. For discussion of the policy trade-offs involved in setting the level of the intellectual property regime's universality or uniformity, compare Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155, 1159–60 (2002) (discussing the drawbacks caused by the universality of the current intellectual property framework), Michael W. Carroll, *One for All: The Problem of Uniformity Cost in Intellectual Property Law*, 55 AM. U. L. REV. 845, 849–50 (2006) (explaining that uniform intellectual property rights necessarily impose deadweight loss), Michael W. Carroll, *One Size Does Not Fit All: A Framework for Tailoring Intellectual Property Rights*, 70 OHIO ST. L.J. 1361, 1389 (2009) (describing the "*uniformity cost*[s]" that "one-size-fits-all" intellectual property rules impose on society), and William Fisher III, *The Disaggregation of Intellectual Property*, HARV. L. BULL., Summer 2004, at 24, 29 (2004) (noting that the three fields of intellectual property have begun to fragment into more customized treatment), with ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS 203–05 (2004) (advocating for simple, uniform treatment of intellectual property as opposed to differential treatment), and R. Polk Wagner, *(Mostly) Against Exceptionalism*, *in* PERSPECTIVES ON PROPERTIES OF THE HUMAN GENOME PROJECT 367, 379–82 (F. Scott Kieff ed., 2003) (cautioning against imposing formal, distinct legal rules across different technologies).

39. This belies, then, the view that it is an "internal paradox" of the incentive–access framework—one resulting in its indeterminacy—that "a work's desirability will indicate both the

Specifically, the trade-off concerns whether the benefits of extending protection to enable the generation of some subset of the third category of innovations (those "supramarginal" to the current level of intellectual property protection) will be worth the costs of increasing the unnecessary deadweight loss incurred with respect to the first two categories of innovations (those "inframarginal" to the current level of intellectual property protection). Or, alternatively, whether the benefits of curbing protection to decrease the unnecessary deadweight loss associated with the first category are worth the cost of foregoing the generation of innovations in the latter two.

This, then, is the incentive–access paradigm, corrected for certain potential infelicities of formulation or understanding: there is a necessary trade-off between increasing incentives for creating supramarginal innovations and decreasing access to inframarginal ones. Somewhat more precisely, we are to ask whether the benefits of increased protection—as measured by the present discounted market value of supramarginal innovations that are thereby generated—will outweigh its costs—in terms of the increased deadweight loss associated with inframarginal innovations.

4. Refining the Trade-offs.—Traditional copyright analysis has tended to remain at this level of framing the trade-off. Patent scholarship, however, has added a further layer of analysis with respect to the inframarginal effects of IP protection. This added layer makes the introduction of product differentiation theory (to be elaborated shortly) much less of a radical novelty in the analysis of patent as compared to copyright. The basic additional insight is that the supernormal returns over inframarginal innovations that will be held out by increased levels of protection will likely result in at least two kinds of "rent-seeking" activity by innovators. One involves races to be the first to come up with the rent-generating innovation and capture the prize it offers.[40] The second activity, pertaining to post-invention efforts, divides into two subsets. One involves "improvement" or "follow-on" efforts oriented toward building upon a pioneering invention; for example, by creating further innovations that incorporate or improve upon it, or by extending its range of applications. Another group involves "invent-around" activity by rivals, who seek to "cannibalize" some portion of the revenues enjoyed by existing incumbents,

need to ensure the work's creation *and* the need to secure its widespread distribution," because greater desirability of a work means a greater need for both its creation and its wide dissemination, and "[therefore] incentive and access will always oppose each other with exactly equal force." Lunney, *supra* note 5, at 486; *see also* Landes & Posner, *supra* note 5, at 326 ("Copyright protection . . . trades off the costs of limiting access to a work against the benefits of providing incentives to create the work in the first place."); Lunney, *supra* note 5, at 554–61 (discussing the paradox whereby the copyright system provides the most protection for the works least "necessary").

40. *See* Muerer, *supra* note 8, at 97.

by offering their own patent-protected, functional substitute to satisfy the relevant market demand. All of these activities will tend to involve high degrees of overlapping innovative activity on the part of firms, and thus result in wasteful duplication or "rent dissipation."[41] This is because the "pot of gold" of rents that spurs the activity consists of revenues from satisfying a specific market need or set of consumer demands, and those racing to do so will likely come up with variants that, while differing in some respects relevant to consumer preferences, will also share many relevant features.

Where IP rights are generic in application, meaning roughly similar for all qualifying innovations irrespective of type (i.e., "pioneer," "improvement," "design-around"), stronger rights of this sort will tend to exacerbate each of these forms of rent dissipation, adding a further set of inframarginal costs.[42] If, however, IP rights can be configured in a more fine-tuned way, so as to tailor protection to different types of innovation, we then face a complex trade-off between effects in opposing directions: A stronger right in the pioneering innovation tends (for better or worse) to depress follow-on—and perhaps invent-around activity at the secondary level—but fuels the race for the primary innovation. A weaker pioneer right is likely to result in less duplicative activity at the primary level but also in greater follow-on and invent-around duplication.

A final wrinkle is that where the rent-seeking activity successfully leads to additional entrants into the market for a product, two potential positive effects may follow. First, to the extent that the competing products are not perfect substitutes but rather variants tailored for specific segments of the market, the innovative activity is not completely duplicative. By better satisfying the preferences of subgroups of consumers, added variety increases total demand satisfaction.[43] Second, added entry, by decreasing the degree of market power enjoyed by the earlier entrant, may result in driving down prices.[44] If such price competition does take place, then the

41. *See* Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305, 317–18 (1992) (discussing various types of rent dissipation); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 265–66, 268 (1977) (explaining prospect theory—specifically, the idea that multiple firms may commit resources to developing a prospect in the hopes of being the one firm that obtains the patent).

42. Subject to one qualification, which is that stronger rights over pioneer innovations may empower the pioneer to increase their control over follow-on improvement activity, and thereby potentially offset the enhanced incentives provided by stronger rights to others to engage in such activity.

43. *See infra* section I(B)(3).

44. Perhaps the patent context where this point has been most clearly understood is pharmaceutical innovation and, in particular, the debate around "me-too" drugs. Ironically, the existence of significant price competition among various IP-protected substitutes is perhaps most fiercely contested in this context. *See, e.g.*, Joseph A. DiMasi & Cherie Paquette, *The Economics of Follow-on Drug Research and Development*, 22 PHARMACOECONOMICS 1, 2–3 (Supp. Oct. 2004) (examining trends in the speed of me-too drug competitive entry); Aidan Hollis, *Me-Too*

rent-seeking duplication is not simply to be added to deadweight losses as a further inframarginal cost, but rather should be understood as a substitute form of inframarginal cost from increased incentives—reducing deadweight loss, but at a price.

While rent dissipation analysis is sometimes classified as a theoretical alternative to incentive–access analysis,[45] it is best understood as a refinement of the standard IP framework, with both analyses integrated into a single supramarginal–inframarginal framework. In other words, the effects of the various rent-seeking activities by entrants should be incorporated as additional, or alternative, supramarginal and inframarginal effects to the familiar ones of incentive and limitations on access. New varieties of existing works are a supramarginal benefit, a diluted form of incentivizing the creation of completely new works. Rent dissipation through duplicative entry is an inframarginal cost, which in some cases may have a tempering effect on the standard inframarginal cost of deadweight loss. And the dynamics driving each of these stem from the same underlying source: the grant of exclusionary rights over nonrival goods to enable their generation.

5. Summary.—To sum up, the innovation-policy problem presented by informational works stems from the fact that, due in part to their non-excludability, the gap between the costs of innovation and those of imitation may be too high to be recoverable from the pecuniary benefits of innovative activity that are appropriable through nonexclusionary means, such as first-mover advantages. The IP solution to this problem—to increase appropriability by conferring exclusionary rights—faces a drawback on account of the nonrival character of informational works. In order to incent their generation, IP rights will necessarily be accompanied by inefficient restrictions on access to informational works (absent marginally costless perfect price discrimination). Whether or not such exclusionary rights are deemed to confer "monopoly power," they must, to achieve their incentive function, confer supramarginal pricing power that results in deadweight loss. This trade-off between providing incentives and curbing access does not, however, operate internally to a given innovation but rather across different classes of innovations, which vary in their ratios of private costs to social surplus appropriability at any given generic level of IP protection. With each increase in such protection, we may induce the creation of heretofore "supramarginal" works, but at the risk of possibly increasing costs of unnecessary curbed access of "inframarginal" ones.

Drugs: Is There a Problem?, COMMISSION ON INTELLECTUAL PROPERTY RIGHTS, INNOVATION AND PUBLIC HEALTH (Dec. 13, 2004), *available at* http://www.who.int/intellectualproperty/topics/ip/Me-tooDrugs_Hollis1.pdf (discussing the economic impact of "me-too" drugs).

45. Fisher, *supra* note 12, at 178–79 (describing "rivalrous invention" as an approach distinct from "incentive theory").

Moreover, increased incentives risk additional inframarginal costs, namely those of duplicative and distortive rent-seeking activity. At the same time, however, such rent-seeking activity may have two offsetting benefits: the inframarginal one of reducing prices and associated deadweight loss for existing works, and the supramarginal one of spurring the creation of distinct variations of existing works that better satisfy consumer demand—variety which would not have been introduced at the lower level of protection.

B. The Impact of Product Differentiation on Copyright-Policy Analysis

Enter the economic theory of monopolistic competition between differentiated products. The main insight of the theory—originally developed by E.H. Chamberlin—is that alongside the standard economic models of pure competition and monopoly, there exists a third that possesses one element of each, forming a distinctive blend with dynamics of its own.[46] In monopolistic competition, each firm faces entry and competition from others (the competitive element), but also enjoys a measure of market power—or insulation from competition—over a subset of consumers (the monopolistic element).[47] The insulation from competition may derive from the fact that each firm offers a differentiated product.[48] "Differentiation" stands in contrast to "homogeneity": rather than each firm's product being indistinguishable from rival offerings from the perspective of all consumers, there is "heterogeneity" in product features and consumer preferences such that various rival wares are only imperfect substitutes for various subsets of consumers. A classic example of differentiation is along the dimension of spatial location, with different consumers preferring different sellers depending on their travel costs to the various locations.[49] Products may, however, be differentiated by varying in any feature relevant to consumer preferences. The fact that such differentiated products compete with one another means that prices will be lower and number of units sold higher than in a purely monopolistic market.[50] But the real, if limited, market power enjoyed by each firm over some segment of consumer demand results in higher prices and a lower number of units sold compared to a purely competitive market.

---

46. CHAMBERLIN, *supra* note 14, at 3–5.

47. CARLTON & PERLOFF, *supra* note 14, at 233–34.

48. But it need not. Monopolistic competition may also occur in markets where products are perfect substitutes, so long as: (1) the fixed costs of entry, shared by all entrants, are high enough in proportion to the overall market as to limit entry and price competition; and (2) Cournot competition is assumed. *See id.* at 206–14 (discussing a basic monopolistic competition model with undifferentiated products).

49. For a discussion of spatial models, see CARLTON & PERLOFF, *supra* note 14, at 220–30; Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 45–67; Yoo, *supra* note 1, at 241–46.

50. CARLTON & PERLOFF, *supra* note 14, at 211, 215.

Later models have developed this basic insight and modeled differentiated product competition in various ways. On standard assumptions, the pricing power enjoyed by incumbent firms will continue to draw newly differentiated entrants into the market, so long as such prices promise supernormal returns (or "economic profit" or rent). In long-run equilibrium, however, firms in monopolistic competition will tend not to reap supernormal returns (unlike monopoly, but like pure competition), despite the fact that their prices remain above marginal cost (unlike pure competition, but like monopoly). This is because of the higher average costs associated with differentiated entry.[51] Debate continues over whether, and under what circumstances, such dynamics will result in socially wasteful over-entry by competing firms.[52]

What does this model add to the analysis of copyright policy? Essentially, it brings into sharper focus the distinct implications that flow from the fact that a work enjoying copyright protection may nevertheless face competition from rivals that also enjoy such protection. The market conditions facing a copyrighted work, that is, are best analyzed as those of a product competing with other differentiated, copyrighted products.[53] The basic point that works protected by IP rights may still face competition in the relevant market has of course often been made before, in the context of the familiar debate over whether such rights create a monopoly.[54] Product differentiation theory, however, supplies a coherent model for analyzing such competition, by specifying the relevant market more precisely, as a product space along a continuum—one marked by differences of degree between partial substitutes, rather than being either wholly occupied by a single monopolist or completely open to competition between undifferentiated rivals. Several implications follow from this model.

---

51. *See id.* at 212–13 (noting that firms in monopolistic competition operate at a smaller output than the output that would minimize their average costs).

52. *See id.* at 233–34 (discussing entry under different models); Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 58–59 ("[S]ome models predict excessive entry while others predict inadequate entry . . . .").

53. Chamberlin himself used copyrighted and patented goods as paradigmatic examples of monopolistic competition, an analysis that went largely unnoticed in patent and copyright scholarship. *See* CHAMBERLIN, *supra* note 14, at 57–59.

54. *See, e.g.*, Paul Goldstein, *Copyright*, L. & CONTEMP. PROBS., Summer 1992, at 79, 84 ("Patent protection may well confer market share and effectively result in monopoly pricing. In copyright, however, a high degree of substitutability invariably obtains."); Kitch, *Elementary and Persistent Errors*, *supra* note 24, at 1729 (criticizing the assumption that "intellectual property rights . . . confer an economic monopoly"); Lemley, *supra* note 9, at 996 n.26 (clarifying that intellectual property rights do not "automatically . . . create 'monopolies'"). It bears emphasizing that the implication often drawn in this literature from the existence of competitive substitutes—namely, that in such cases we needn't be concerned about the effects of IP rights on pricing power and deadweight loss—is in error. As discussed above, IP rights must, as a necessary correlative of providing innovation incentives, confer pricing power that will result in deadweight loss (absent costless price discrimination). This remains the case whether or not such pricing power is labeled a "monopoly" or "market power." *See supra* section I(A)(2).

1. Price and Deadweight Loss.—The first implication goes straight to the heart of the traditional incentive–access paradigm, and concerns the effect of copyright protection on price and, hence, access and deadweight loss. In a monopolistic–competitive market where an incumbent enjoys rents, new firms offering substitute products will be attracted and will continue to enter so long as there remains a surplus in the market sufficient to enable each newcomer to recoup its fixed costs of entry.[55] This entry will tend to cause the price charged by each firm to decrease.[56] Note that product differentiation models do not assume pricing strategies under which any degree of competitive entry will bring prices down to average- or marginal-cost pricing. Rather, the assumption is that each entry brings about only an incremental decrease in price (and concomitant reduction in deadweight loss), which reflects both the increase in competition and the fact that each firm continues to enjoy a measure of market power.[57] Equilibrium is reached when all rents are dissipated and price equals average cost.[58]

To illustrate, consider an example of a firm that creates and sells a copyrighted teenage-vampire comic book. Assume that the total consumer demand for the comic book is $720,000 over a linear demand curve, where 60,000 units will be sold at the midpoint price of $6. Further assume that the development costs of the comic are $160,000[59] and (to simplify) that the marginal cost of producing and distributing copies of the book is $0.[60] At time 1 the firm faces no competition. Under these conditions the firm will charge the profit-maximizing price of $6, sell 60,000 units, and collect total revenue of $360,000. The result is a rent (i.e., a net surplus of revenue over capitalized costs) of $200,000 enjoyed by the firm and a deadweight loss of $180,000. The rent, however, is bound to attract new entrants. Thus, at time 2, a second firm enters the market with its own independently developed competing product (i.e., its own take on the teenage-vampire

55. CARLTON & PERLOFF, *supra* note 14, at 209; Yoo, *supra* note 1, at 239.

56. CARLTON & PERLOFF, *supra* note 14, at 211; Yoo, *supra* note 1, at 238.

57. CARLTON & PERLOFF, *supra* note 14, at 207–10; Yoo, *supra* note 1, at 238.

58. This is subject to what is known as the "integer problem" (i.e., a situation in which the "lumpiness" of fixed cost allows each firm to earn a small profit at equilibrium). Nicholas Kaldor, *Market Imperfection and Excess Capacity*, 2 ECONOMICA 33, 42–43 (1935); Christopher S. Yoo, *Rethinking the Commitment to Free, Local Television*, 52 EMORY L.J. 1579, 1607–08 (2003).

59. These include costs incurred in the efficient pursuit of failed efforts, diversified project portfolios, or both, all capitalized at the appropriate risk-adjusted rate.

60. For ease of exposition, all specific examples in this Article assume Chamberlin's basic model of monopolistic competition—often referred to as a "representative consumer model"—in which all firms compete for all consumers in the market. CARLTON & PERLOFF, *supra* note 14, at 201. Other models, especially those within the categories of location models or hybrid models, may produce different analyses and results in specific cases. The choice of models does not change, however, our general observations about product differentiation theory and its application to copyright. Some further assumptions of this basic Chamberlin model include: free entry by firms, equal fixed costs, and negligible effects of the behavior of any one firm on any other.

comic genre). Assume, for now, that the two products are perfect substitutes for each other and that each firm incurs an identical development cost (i.e., $160,000).[61] What will be the effects of the entry in time 2 when each firm faces competition from the other? The first effect will be a decrease in price. The extent of the price decrease is a matter of some disagreement in economic theory,[62] but under one common set of assumptions, each firm will optimize its output on the basis of residual demand available to it given the output decisions of its rival, until an equilibrium is reached where no firm has an incentive to change output levels.[63] The corresponding price charged by each firm will be the profit-maximizing one given the residual demand available to it in equilibrium. Here, this scenario would result in each firm producing 40,000 units at $4 for $160,000 revenue each. At this point there would be no further entry since each firm is pricing at average cost, so as to exactly recoup its investment, leaving no rents to attract additional entry (entry which would likely result in a loss to all firms). We see, then, how differentiated product competition brings with it a reduction in price and in deadweight loss. In time 1 (which represents monopolistic conditions), 60,000 units were sold for $6 each, resulting in deadweight loss of $180,000. In time 2, a total of 80,000 units were sold (40,000 by each firm) for a price of $4, resulting in a decreased total deadweight loss of $80,000.[64]

Two features of the effects of differentiated product competition on deadweight loss bear emphasis at this stage. First, the degree of entry and of resultant reduction in deadweight loss depends on the ratio between the fixed cost of each firm and the size of the surplus in the market.[65] The smaller the costs in proportion to demand, the greater the number of firms that we can expect will enter the market and cause additional decreases in price.

---

61. Assume, that is, that we have a case of undifferentiated monopolistic competition. *See supra* note 42.

62. *See* CARLTON & PERLOFF, *supra* note 14, at 160–92 (reviewing the disagreement among economists "about the best way to model [oligopolistic] markets," with the existence of a number of plausible models that "make very different assumptions about how firms behave," resulting in "very different predictions about the nature of the equilibrium").

63. This model is known as Cournot pricing. *Id.* at 161–70. For its application to monopolistic competitions, see *id.* at 207–09.

64. Actual pricing schemes in some copyright industries may differ greatly from the one assumed in this stylized example. Thus, in many sectors, such as film and recorded music, products are ostensibly priced more or less uniformly irrespective of demand or development cost, with greater popularity seemingly reflected mainly in the volume of sales. Any concrete application of the abstract product differentiation model to specific industries will have to account for such practices. The crucial point for our purposes here—that increased copyright protection will create more pricing power, which will attract entry by competitors offering substitutes—applies, however, even if prices are relatively uniform across goods.

65. Yoo, *supra* note 1, at 239.

A second point is that while differentiated competition reduces deadweight loss, it can never eliminate it altogether. Recall *Scenario 3* discussed above.[66] To recoup its fixed cost each firm must price its product above marginal cost. In the absence of marginally costless perfect price discrimination, this necessarily involves some deadweight loss. The idea of providing incentives via IP rights without deadweight loss remains just as illusory as before the incorporation of product differentiation analysis. As explained, as the ratio between market size and fixed cost increases, deadweight loss will tend to decrease. But it can never disappear altogether. The theoretical exception is the limit case in which the size of the market is infinite relative to the fixed cost.[67] At this point differentiated competition collapses into a standard pure competitive model: the number of firms is infinite, price equals marginal cost, and there is no deadweight loss.[68]

Notice, however, that in this limit case, any IP protection provided does not in fact perform any incentive function. Where the IP right does not facilitate firms' ability to charge above marginal cost, it does not provide any added incentive. Indeed, the lesson from the theoretical limit case would be that when conditions approach such a situation—that is, when the ratio between market size and fixed cost is very large—the incentive-based justification for providing IP protection becomes very weak. Where firms are able to recoup their fixed costs with even a negligible markup above marginal cost, then it becomes increasingly likely that the quasi-rents required for covering development costs could be generated by some of the many alternatives to IP protection commonly understood to mitigate the suboptimal incentive problem associated with information goods, such as first-mover advantages, contractual arrangements, social norms, indirectly leveraging the reputation associated with creative activity through various business models, and so forth.[69] And when this obtains, there is no reason to incur the costs associated with providing IP rights.[70]

---

66. *See supra* section I(A)(2).

67. Yoo, *supra* note 1, at 239–40.

68. CARLTON & PERLOFF, *supra* note 14, at 211.

69. For a discussion of alternative means for recouping development cost, see LANDES & POSNER, *supra* note 9, at 43; Breyer, *supra* note 7, at 290–91.

70. Apart from the deadweight loss (a modest amount in this case), there are other costs associated with an IP-rights regime, such as costs of granting, enforcing, and bargaining over the rights. *See* LANDES & POSNER, *supra* note 9, at 16–21 (discussing transaction costs, rent seeking, and protection costs); James Bessen & Michael J. Meurer, Essay, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 388–89 (2014) (discussing the costs from "non-practicing entities"); Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEXAS L. REV. 1031, 1058–59 (2005) (listing five "categories" of costs from "overbroad intellectual property rights").

2. Total Fixed Cost.—Effects on price and deadweight loss comprise just one element of differentiated-product competition, just as they are only one set of parameters in a supramarginal–inframarginal analysis of IP trade-offs. Another element is the effect on total fixed costs incurred by the competing firms in combination. A basic assumption of product differentiation models is that all entrants incur similar costs (the common, but not necessary, assumption is identical cost curves for all firms).[71] The upshot is that each entry entails an additional cost in the form of the fixed cost invested by each entrant. The fiercer the competition and the greater the number of entrants, the larger the total fixed cost of all firms combined. In our example, each of the entering firms creates its own teenage-vampire comic book and thus incurs the full costs involved in developing such a product, so that if the development cost for one firm is $160,000, then the total cost with two entrants is $320,000.

Notice that, to the extent that each competing product is identical to the others, from the vantage of consumer preferences all fixed costs over and above the first firm's are duplicative and wasteful. That is, assuming as we have until now that each of the comic books in our example is a perfect substitute for the others (an assumption that will be modified shortly), then in a two-entrant scenario, the second firm's development costs are completely wasteful in the sense that twice the amount was spent to create what was, in terms of consumer demand, the same product. Differentiated competition creates, then, alongside its potential price benefits, social costs in the form of additional or duplicative fixed or development costs. Applying this insight to copyright creates an analogue to what, to a large extent, was already recognized in the patent literature. Specifically, it mirrors the discussion of the effects of race-to-invent, invent-around, and race-to-improve activity: namely how the existence of IP-enabled rents may spur the entry of multiple firms, each seeking with their own IP-protected product to "divert" or "steal" (or, in the patent context, "cannibalize") the sales of other rival variants, with its respective social costs and benefits.[72]

3. Variety.—A final effect of product differentiation is that implied by the term "differentiation": the positive impact on consumer welfare of new product variants that do not constitute perfect substitutes. Contrary to our simplifying assumption up to now of monopolistic competition taking place in a homogenous product space, recall that the standard assumption of product differentiation models is that for some subset of consumers, each

71. *See* CHAMBERLIN, *supra* note 14, at 82 (making "the heroic assumption that both demand and cost curves for all the 'products' are uniform throughout the group"); *see also* Kaldor, *supra* note 58, at 43 (observing that the objection to the assumption of "identical cost and demand curves" as unrealistic is "no valid criticism" of monopolistic competition theory (internal quotation marks omitted)).

72. *See supra* notes 38–39 and accompanying text.

product is only an imperfect substitute for the others.[73] To the extent that segments of consumers differ in their preferences for the varying features of competitors in a given product space, the existence of a greater number of variants will tend to improve consumer welfare as a whole, by achieving a more fine-tuned satisfaction of consumer tastes.[74] If some readers of the first teenage-vampire comic book (say "Buffy the Vampire Slayer") prefer a different variant in the genre (say "Ruffy the Vampire Eater"), then even if they like Buffy enough to be willing to buy it, the greater satisfaction they would derive from Ruffy would be a greater addition to overall social surplus.

Consequently, although the fixed cost incurred by additional entrants is always a real cost, the extent to which it is completely duplicative or wasteful (in the sense of not adding to social surplus) depends on the degree to which the variant satisfies a somewhat different set of consumer demands. Located at one extreme is the case of complete "demand diversion," in which a new entrant offers a complete substitute that does not satisfy any new demand, resulting in completely duplicative development costs.[75] By contrast, in the case of "demand creation," new product variants provide more refined satisfaction of consumer tastes, and thus their entry adds to overall social surplus (and perhaps to net social benefit, depending on the difference between their development costs and added demand satisfaction).[76] Thus, the third possible effect of differentiated competition is the variety benefit of demand creation through better tailoring of products to consumer preferences.

4. Copyright as a Differentiated-Competition Lever.—The extent and character of copyright may directly influence the market conditions that determine the character and extent of differentiated competition. Thus, copyright law's contours may be consciously shaped with an eye to influencing such conditions. Most importantly, copyright can influence the

---

73. Won't variations in consumer preference for the offered products confer upon some firms market power over their differentiated competitors? Certainly this may happen in some real-world markets, but we adopt here the idealizing assumption of "symmetric preferences" that is common to many monopolistic competition models. *See* Yoo, *supra* note 1, at 225 (explaining and adopting "the symmetric preferences branch" of monopolistic competition theory (internal quotation marks omitted)). On this assumption, variations among a subset of consumers for one, rather than another, of the offered products balance out, so as to confer on no firm an advantage over its rivals across the class of consumers as a whole. *See id.* at 237 ("The primary effect of this [symmetric preferences] assumption is to place each work in equal competition with all other works in the group.").

74. *See* CARLTON & PERLOFF, *supra* note 14, at 216 ("[V]ariety is desirable . . . ."); Yoo, *supra* note 1, at 252–53 (referring to "welfare gains resulting from product variety").

75. *See* Abramowicz, *An Industrial Organizational Approach*, *supra* note 1, at 39 (describing demand diversion); Yoo, *supra* note 1, at 253 ("[E]ntry appears to be a waste of resources when products are homogenous . . . .").

76. Yoo, *supra* note 1, at 260–61.

size of market surplus available to competing firms, thereby affecting entry levels and its related effects on deadweight loss, fixed cost, and variety.[77] To take our example, lengthening the copyright term for books and expanding its scope to cover a wider spectrum of activities involving the use of such books would increase the market surplus available for firms offering rival copyrighted books.[78] Holding constant the fixed costs involved in generating such books, more firms offering their own variants will enter the market, with the resultant economic effects just adduced. IP rights offer, then, an important lever for adjusting (in either direction) a central set of parameters associated with differentiated competition in informational works.

The analyses of the two main scholars who have written about copyright and product differentiation—Professors Yoo and Abramowicz—largely share the basic understanding of the three effects of product-differentiated competition described above. They also share a common recognition that various features of copyright law can serve as levers to shape the character and extent of competition between copyrighted, differentiated goods and the effects of such competition. From that common platform, however, the two move in sharply divergent directions. For Yoo, although the duplicative costs of differentiated competition are not completely overlooked, pride of place is given to its price-reducing and variety-increasing benefits.[79] Abramowicz, however, foregrounds its duplicative costs (and associated distortion in the allocation of overall social resources).[80] As a result, they offer strikingly different (indeed, virtually polar opposite) doctrinal recommendations, to which we turn next.

II. Product Differentiation and the Parameters of Copyright Protection

Assuming that our sole normative beacon is economic efficiency,[81] what guidance can product differentiation theory offer in shaping copyright doctrines in pursuit of that aim? We approach this question in two stages: first by critically evaluating the existing doctrinal proposals offered in this vein by Professors Yoo and Abramowicz (this Part); and then by offering our own alternatives (Part III).

---

77. *Id.* at 261.

78. The duration example is theoretical. Given the current baseline of a very long copyright duration and the declining *ex ante* value of any additional increment of duration, any additional extension is likely to produce only negligible effect on the value of a copyright. Accordingly, in current practice, duration is a very poor means for increasing market surplus at the *ex ante* point at which firms decide whether to enter a market with competing works. On the declining value of longer copyright protection, see *infra* note 130 and accompanying text.

79. *See infra* subpart II(A).

80. *See infra* subpart II(B).

81. The implications of product differentiation theory for values other than efficiency are explored by us in other work. *See generally* Oren Bracha & Talha Syed, *Beyond Efficiency: Consequence-Sensitive Theories of Copyright*, 29 BERKELEY TECH. L.J. (forthcoming 2014).

The existing prescriptions intriguingly form an almost exact mirror image of each other. In broad terms, Yoo emphasizes price and variety benefits of differentiated competition and recommends making copyright protection very strong, but also relatively narrow in the sense of reaching works that bear only high degrees of similarity to the original. By contrast, Abramowicz foregrounds the duplicative costs of such competition, and suggests that certain aspects of copyright protection should be made weaker than traditionally assumed, while also commending doctrines to increase the breadth of the (now overall weaker) protection, in the sense of covering works with much lower degrees of similarity to the original. We take up each set of proposals in turn, distilling the gist of their doctrinal recommendations and then evaluating them along the following respects: the plausibility of their legal analysis of how specific copyright doctrines do or can work; the economic desirability of their prescriptions for how the doctrines should work; and, where relevant, considerations of institutional administrability.

A. Inclusive, Intense, & Narrow

1. Summary.—The central thrust of Yoo's approach is to promote access to copyrighted works by *strengthening* protection, so as to stimulate the competitive entry of differentiated substitutes and thereby bring down prices.[82] Stronger copyright promotes entry by increasing the surplus in the relevant market available for private appropriation, which attracts newcomers, competition from which should have a salutary effect on prices.[83] Moreover, with these entrants comes another social gain, in the form of increased tailoring of their differentiated wares' features to consumers' preferences.[84] Thus, increased entry produces both a reduction of deadweight loss and a beneficial increase in product diversity. On this view, then, the tension deemed inherent to copyright under the traditional incentive–access paradigm is taken to be a false dilemma: the ostensibly intractable trade-off between access and incentives is belied by the possibility of simultaneously promoting both.[85] Although deadweight loss can never be eliminated altogether, ideally it will be reduced to the minimal level predicted by the monopolistic competition model, in which each firm prices its product at average cost (so that overall returns are just enough to

82. Yoo, *supra* note 1, at 251 (arguing that access "may be promoted by stimulating entry, which in turn requires the strengthening of copyright protection").

83. *Id.* at 254–55.

84. *Id.* at 252–53, 267.

85. *Id.* at 251 ("[I]nsights [of product differentiation theory] falsify the claim that simultaneous promotion of access and incentives is impossible and that copyright necessarily devolves into a tradeoff between the two."); *id.* at 264 (arguing that "by identifying remedies that can promote access and incentives simultaneously," the differentiated-products approach "reveals the supposed tension between those two considerations to be something of a false conflict").

recover the sunk capitalized costs of innovation or development).[86] The bottom line? Exactly in those cases where traditional theory prescribes cutting back protection—i.e., when there is concern over excessive price and deadweight loss—product differentiation theory counsels boosting protection up.[87]

However, the model does not indiscriminately advocate increased protection. Rather, Yoo distinguishes between three elements of copyright protection: "scope," "intensity," and "breadth."[88] Scope is measured by the number of wealth-generating activities using a particular work that may fall under the sway of copyright protection.[89] It determines, that is, the size of the market over which various differentiated works, each protected by copyright, compete.[90] The doctrinal levers shaping scope in this sense include the term of protection and the bundle of exclusive entitlements given to the copyright owner. Intensity refers to the degree to which copyright owners can "appropriate the surplus created by [the uses of] their works" that fall within the encompassed scope.[91] Intensity, too, may be affected by various doctrinal features, such as the many exemptions, limitations, and compulsory licenses that exist in the Copyright Act,[92] or the extent to which certain uses are exempted under the fair use doctrine.[93] Intensity, like scope, affects the size of market surplus available to competitors.[94]

---

86. *Id.* at 244, 253–54.

87. *Id.* at 259.

88. *Id.* at 264–65.

89. *Id.* at 265–66.

90. *Id.* at 266.

91. *Id.* at 267.

92. *See, e.g.*, 17 U.S.C. §§ 107–112, 121 (2012) (imposing certain statutory exemptions, limitations, and compulsory licenses on copyright owners).

93. Yoo, *supra* note 1, at 267–70.

94. The boundary between Yoo's "scope" and "intensity" of protection can be somewhat blurry. The question of whether a particular activity—such as copying by libraries—should be covered by copyright will often be plausibly framed as pertaining either to "the size of the right" that the holder receives as a matter of the "scope" of copyright entitlements, or to the "intensity" of said entitlements. *Id.* at 267. Examples such as this point to a disjunction between the economic categories Yoo seeks to mark out with his distinction and the doctrinal tools identified to track them. From an economic point of view, the analytical distinction being emphasized—between the "sweep of surplus-generating activit[ies]" associated with an informational work that copyright protection may reach and the proportion of the surplus from such activities that the copyright holder is empowered to appropriate—seems, although not watertight, clear enough. *Id.* at 265. However, some of the doctrines discussed under the second category of intensity—such as fair use—seem on the whole more appropriate to slot under the first, that of scope. More fitting under intensity would seem to be doctrines (some of which may lie outside copyright proper) that affect, for example, a copyright holder's ability to engage in fine-grained forms of per-use charges (e.g., one price for (each) reading of a book, a different price if also lending the book to a friend, etc.) and price discrimination among groups of users (which Yoo does place under this rubric). *Id.* at 270–71. Given, however, that Yoo's policy prescriptions for the two categories converge, we leave aside the question of how to doctrinally and functionally distinguish between them.

The third dimension, breadth, refers to the degree of similarity to a copyrighted work that a second work must display to be found infringing.[95] Wide breadth will encompass remote and abstract levels of similarity, while narrow breadth will be limited to adjacent, concretely specified similarity in expressive elements. Breadth operates as a legal constraint on the degree of substitutability of competing differentiated works—the broader the protection, the less finely differentiated or more imperfect as substitutes the rival works will be.[96] And this constraint is affected by several distinct doctrinal levers, including the test for copyright infringement, the idea–expression dichotomy,[97] the *scène à faire* doctrine,[98] and the merger doctrine.[99]

The interaction of these three dimensions of copyright protection with the dynamics of differentiated-product competition issues in as a strong default: the prescription of strengthening the first two dimensions (scope and intensity) while weakening the third (breadth).[100] Wider scope and

---

95. *Id.* at 265.

96. *Id.* at 271–72.

97. *See* 17 U.S.C. § 102(b) (denying protection to any "idea"); Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930) (explaining that apart from their expression, a playwright is never extended property rights for his "ideas").

98. *See* Lexmark Int'l, Inc. v. Static Control Components, Inc., 387 F.3d 522, 535 (6th Cir. 2004) (utilizing the doctrine to ascertain the "elusive boundary line" between idea and expression); Schwarz v. Universal Pictures Co., 85 F. Supp. 270, 275–78 (S.D. Cal. 1945) (illustrating the French *scènes à faire* to make its decision); 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.03[B][4] (2013) [hereinafter NIMMER ON COPYRIGHT] (explaining the doctrine).

99. *See* 17 U.S.C. § 102(b) (denying protection to any "procedure, process, system, [or] method of operation"); Baker v. Selden, 101 U.S. 99, 104 (1879) (ruling that while one has the right to print or publish a book that describes a "useful art," others may practice that art without violating copyright); NIMMER ON COPYRIGHT, *supra* note 98, § 2.18 (discussing "Limitations on Copyrightability by Reason of Utilitarian Function"); Pamela Samuelson, *Why Copyright Law Excludes Systems and Processes from the Scope of Its Protection*, 85 TEXAS L. REV. 1921, 1976 (2007) ("Some courts have employed the scenes a faire or merger doctrines in order to limit the scope of copyright protection in cases involving complex functional designs in copyrighted works."); *see also* BUC Int'l Corp. v. Int'l Yacht Council Ltd., 489 F.3d 1129, 1143 (11th Cir. 2007) (describing the merger doctrine); 1 NIMMER ON COPYRIGHT, *supra* note 98, § 13.03[B](3) (explaining merger).

100. *See* Edward Lee, *Digital Originality*, 14 VAND. J. ENT. & TECH. L. 919, 938 (2012) (explaining how two identical works can each obtain copyrights or other protection). The distinction between scope and breadth is in fact quite unstable and difficult to pin down, even conceptually, and this significantly complicates the prescription that we should, on the one hand, strengthen the former while, on the other hand, weakening the latter. The difficulty is that it is unclear what precisely are the criteria for distinguishing variations in surplus-generating activities relating to the same work (i.e., scope) from variations in the level of similarity between the original and subsequent works (i.e., breadth). Consider the case of a film adaptation of a novel or a translation which sticks as closely to the original as possible. Is each of these yet another surplus-generating use of the original that we should include within the scope of copyright protection, or is it an imperfect substitute that we should tend to allow under the guideline of narrow breadth? There is a clear and intuitive sense in which the film and the translation are surplus-generating uses of the same original work. But for a substantial number of consumers of the novel they may also be imperfect substitutes of the original. The translation is an imperfect

higher intensity of protection will give rise to a larger market, with more uses of the informational work being covered by copyright and holders being empowered to appropriate a larger share of the surplus from this market.[101] This increase in potential revenues from expressive works will attract new entrants, resulting in the two beneficial effects of enhanced competition (leading to lower prices for incumbents' works and thus decreased deadweight loss), and greater differentiation or variety in the expressive works on offer (and thus more finely tailored satisfaction of the preferences of subsets of consumers).[102] Meanwhile, narrowing the breadth of protection will minimize the legal hurdle for entry by close, but imperfect, substitutes.[103]

Moreover, transcending the traditional assumption of an inherent trade-off between access and incentives also yields gains, on this account, in the administrability of an efficient copyright regime.[104] Under the incentive–access paradigm, the governmental institutions that make and apply the law should attempt to "calibrate the level of copyright protection to the lowest level possible that still supports the production of creative works."[105] More precisely, they should shape copyright so that protection is only extended in those cases where the social benefits from added or supramarginal innovations outweigh the social cost of decreased access over inframarginal ones. Such calibration requires massive amounts of information and a high degree of skill,[106] both of which are expensive or perhaps simply unavailable. Additionally, a governmental process of such complexity and uncertainty may be especially vulnerable to intensive levels of rent-seeking activity by private parties seeking to divert its results in their favor.[107] By contrast, the doctrinal recommendations flowing from product differentiation radically simplify the task facing governmental agencies. All they have to do is to turn the three doctrinal knobs identified above, in the clear and consistent directions specified, so as to facilitate differentiated-competitive entry, after which they can just rely "on the market to calibrate prices at the levels that ensure that authors do not earn

---

substitute of the original for those who fluently read both languages. The film is an imperfect substitute of the original for those who would answer the question "Have you read Pride and Prejudice?" with the response "No, but I've seen the movie." This ambiguity encompasses more than a limited number of cases along a fuzzy conceptual borderline. Many of the derivative uses that are potentially covered by modern copyright law seem to trigger the same conceptual difficulty. This substantially muddles the neat distinction between scope and breadth and the distinct doctrinal recommendations applicable to each category.

101. Yoo, *supra* note 1, at 266–67.

102. *Id.*

103. *Id.* at 271–72.

104. *Id.* at 224–25, 258–59.

105. *Id.* at 258.

106. *See id.* at 224, 258–59 (noting that informational demands of the traditional approach "border on the prohibitive" and "threaten to exceed the government's institutional capability").

107. *Id.* at 259 n.147.

supracompetitive profits."[108] Such an enterprise, given its comparatively clear and categorical character, is far less demanding of information and skill and, presumably, less susceptible to rent-seeking activity.

If the position described above seems somewhat rosy, it is not completely panglossian. Yoo acknowledges that "an important qualification" to the foregoing is the potentially duplicative and, hence, wasteful character of differentiated competition.[109] That is, when much of the surplus appropriated by an entrant comes not from new surplus generated by more tailored satisfaction of consumer preferences (demand creation), but from transfers of existing surplus siphoned from incumbent products (demand diversion), there is the danger that such entry may remain privately profitable even when its added social benefits are outweighed by its costs.[110] The danger is closely related to the level of substitutability between competing products: the more perfect a substitute of an existing product that a new entrant is, the higher the level of demand diversion and possibility of a net social loss.[111] To be sure, in less cautious moments Yoo claims that the potential problem of wastefully duplicative entry that "disappear[s] when viewed through the lens of product differentiation."[112] However, in general he does recognize that high levels of "demand diversion" may result in a net social loss.[113]

To address this countervailing consideration, Yoo recommends refining his prescriptions in the direction of even stronger protection, by now increasing the one so far weaker dimension, that of breadth.[114] Lawmakers, he suggests, can pursue the optimal level of competition by calibrating breadth as follows. When the volume or similarity of expressive works in a given product space seems too high—i.e., when there is crowding of a genre with increasingly substitutable variants—then the danger of demand diversion is strong and should be addressed by fine-tuning the test for infringement so as to cover works at lower levels of similarity, thereby "increas[ing] the distance between adjacent works."[115] When substitutability seems low, and hence the danger of much demand diversion remote, we keep to the default view of a narrow approach that requires high levels of similarity for infringement.

Although on first blush Yoo's recommendations may seem both coherent and substantively attractive, on closer scrutiny neither conclusion can be sustained. In the following section we identify a number of

---

108. *Id.* at 259.
109. *Id.* at 222 n.33, 260–64.
110. *Id.* at 261.
111. *Id.* at 272.
112. *Id.* at 253–54.
113. *Id.* at 263.
114. *Id.* at 263, 271–72.
115. *Id.* at 272.

theoretical difficulties facing the model and its policy prescriptions. We then turn, in sections II(A)(3) and (4), to doctrinal and administrability hurdles to implementing those prescriptions even if they were theoretically sound.

2. Policy Gaps and Conflicts.—The central thrust of this model, of simultaneously promoting incentives and access by strengthening protection to increase competitive entry by differentiated expressive works, is flawed in three fundamental respects. First, its primary claim of somehow transcending the intractable character of the incentive–access trade-off lying at the heart of traditional copyright-policy analysis is belied once we realize that to a large extent it just replaces this with another equivalently inescapable trade-off, that between deadweight loss and duplicative wastes. Second, the analysis significantly underestimates the costs of reducing deadweight loss using the mechanism of increased competitive entry by differentiated substitutes. Finally, and relatedly, it also significantly exaggerates the incentive benefits represented by such differentiated substitutes.

These flaws are significantly connected to an important underlying analytic weakness, which is the model's failure to fully integrate the distinct components of the supramarginal–inframarginal framework laid out in subpart I(B) above. As specified there, the basic policy dilemma at the heart of copyright is between realizing supramarginal benefits of increased levels of protection—in terms of enabling the creation of otherwise-foregone innovations—and incurring its negative inframarginal effects in terms of barriers to access and duplicative wastes.[116] These benefits and costs result from the exercise of exclusionary rights over nonrival goods. Yoo's analysis, however, fails to recognize the centrality of nonrivalrousness (indeed its importance is explicitly downplayed[117]), and correspondingly it understates the intractability of deadweight loss as well as the costliness of any attempt to reduce it that does not take advantage of the nonrival character of expressive works.

a. Price Competition: How Much Benefit at What Cost?—We begin by considering a basic case under the traditional incentive–access framework. Suppose that at current level of copyright protection X, we have exactly the incentive needed to attract the creation of comedy film A. At this level of protection, that is, the film's creators will be able to realize revenues—by pricing the film (and "windowing" its release, etc.), in a certain way for a certain duration—that are just enough to recoup their development costs (capitalized, adjusted for risk, and factoring in failed

116. *See supra* text accompanying notes 38–39.

117. *See* Yoo, *supra* note 1, at 246–48 (discussing "the noncentrality of nonrivalry").

efforts). In the absence of the unrealistic option of costless perfect price discrimination, film *A* will be made available at prices that are to a large extent uniform across customers, involving markups that incur some deadweight loss. However, on the assumption that the level of protection *X* is just enough to enable the creation of the film, the flat prices charged will be the minimal ones needed for the creators to recoup their investment and, thus, for the film to be created at all. Accordingly, while there is deadweight, it is at a level below which the creation of the film would be jeopardized.

Focusing solely on the market for this single film *A*, traditional economic analysis discloses two sets of insights regarding how outcomes in such a case may be improved within the framework of copyright. First, no improvement would come from a simple "increase" or "decrease" in overall protection by itself. Any reduction in the level of protection would cause the film not to be created at all. Any increase in the level of protection would result in a higher price and greater deadweight loss, with no corresponding social benefit. However, and second, there are nevertheless possibilities for improvement by tweaking various levers so as to provide the same incentive with smaller corresponding deadweight loss.[118] For example, we might adjust copyright exemptions or damages to increase access to some users via lowered or eliminated restrictions, while offsetting any decrease in producer returns through increased protection over other uses that come with lower per-unit deadweight loss.[119] Or we might increase overall copyright protection but then supplement it with compulsory licenses or administered royalty rates, so as to provide revenues over a larger or longer market, but at a lower per-unit markup. In such cases, the trade-off is not between "incentives" versus "access," but between different types of "access" or "loss" accompanying the same amount of "incentive."

On Yoo's account, however, product differentiation theory suggests that a simple increase in the overall level of protection could be a net improvement by itself.[120] Suppose that by adjusting some of its parameters (those corresponding to scope and intensity), copyright protection is boosted from *X* to 5*X*; that is, the beefed-up protection level increases by fivefold the market size or amount of surplus from market demand that is made available to sellers.[121] Initially, the effect would likely be either an expansion of price restrictions over a larger set of uses, or a substantially higher price charged for already-protected uses, of film *A*, resulting in

118. *See* Fisher, *supra* note 9, at 1668–86 (1988) (developing incentive–loss ratio analysis); Louis Kaplow, *The Patent-Antitrust Intersection*, 97 HARV. L. REV. 1813, 1829–38 (1984) (same).

119. *See* Fisher, *supra* note 9, at 1767–79 (discussing possible ways a judge could alter the fair use doctrine to allow greater amounts of access without discouraging producers).

120. Yoo, *supra* note 1, at 254–55.

121. Obviously, achieving this is much more complicated than we make out here.

larger producer revenues or surpluses and greater deadweight loss. Over time, however, the increased surplus available in the market would attract entrants offering close substitutes of film *A* (meaning only slightly different comedy films *A1*, *A2*, *A3*, etc.). Eventually the market would reach an equilibrium with a large number of slightly differentiated comedies, each sold for a price just sufficient for each film to cover its capitalized development costs, with corresponding levels of deadweight loss. In this sense, looking only at the market of film *A* and its close substitutes, both incentive and access seem to have been promoted. Increased copyright created additional available surplus, which attracted greater entry and thereby incentivized the creation of close substitutes. At the same time, the competitive dynamic between the substitutes promotes access by bringing price and deadweight loss levels down, at least *by comparison to the initial situation created by the increased level of copyright protection.*

We will soon expand our focus to examine the effects of this increase in general copyright protection on markets for other copyrighted works besides film *A* and its close substitutes. But first we must notice that even within the market for film *A*, our assessment of the foregoing effects depends on what we take to be our comparative baseline. Specifically, the above "access" and "incentive" gains seem more impressive when the baseline is taken to be the situation immediately after the increase in protection; they are much less likely to be a net improvement over the *initial situation prior to the increase in the level of protection.*

Consider first the issue of reduced deadweight loss. How, it might be asked, could there be any improvement in access over a situation where, prior to the increase in protection, the pricing power conferred by copyright was only just enough to recover development costs (and hence the corresponding deadweight loss was that just necessary to enable creation)? The answer is that strengthening protection as above not only increases pricing power but also expands the market size/surplus over which that power is exercised.[122] If that increased power is then somehow disciplined or diffused over a larger volume, there is the potential for it to be less distortive, by resulting in a smaller per-unit markup. A variation of this point was already understood with the traditional framework, which, as discussed above, recognized that one way to improve outcomes is to reshape protection so that the same amount of incentive can be realized with a different amount, or composition, of loss.[123] Applied here, this would mean that alongside expanding copyright over more uses (or for longer periods), we would impose measures to discipline its per-use pricing power, such as with reduced damages for infringement or compulsory licenses. This would provide the same incentive with a smaller corresponding loss in

122. Yoo, *supra* note 1, at 254.

123. *See supra* notes 118–19 and accompanying text.

access. Yoo's model, however, proposes to expand copyright pricing power without any accompanying administrative attempts to curb it; rather, it prefers to rely on market competition to discipline the expanded power, in the form of differentiated entry. The trouble with this approach, however, is twofold: there is no assurance that overall deadweight loss will indeed decrease, and any decrease that is realized in this manner will be achieved at a very high cost, incurring unnecessary wastes from duplicative entry.

When copyright protection is strengthened to increase the market surplus available to firms, there is no guarantee that any ensuing competitive entry will result in a net decrease in deadweight loss. Two countervailing effects are at work in such a case. The first, emphasized by Yoo, is the decrease in price that results from expanding market size/surplus, which results in increased entry and competition over a larger base of consumer sales.[124] Countervailing that, however, is the extension of the negative effect of supracompetitive pricing over an additional segment of consumer demand, whether expanded copyright is achieved by term extensions or by alternatives, such as including within the scope of protection uses of the work that were previously exempted. If, for example, the copyright term is extended from ten years to thirty, those consumers who previously could have accessed the work free and clear of protection after ten years, under fully competitive conditions, will now endure an additional twenty years of copyright-protected prices, generating additional deadweight loss. Which of these two countervailing effects dominates will depend on a host of conditions pertaining to demand patterns in different submarkets that will likely vary from case to case, with net deadweight loss potentially increasing, decreasing, or remaining unchanged. There is no particular reason to think that in most cases the prevailing effect will be a net decrease.

Moreover, the effect on deadweight loss is never isolated. Whether positive, negative, or nonexistent, it is always "purchased" at a substantial cost: that of additional fixed costs incurred by each new entrant. Each new product variant—in our example, each new comedy film—requires expenditure on the fixed costs of its development. These total costs steadily accumulate with each entrant attracted by higher levels of available surplus, and do so at a roughly constant rate. Meanwhile, the intensity of price competition, and hence the magnitude of the positive effect of decreased deadweight loss, if any, will tend to fall steadily with each new entrant.[125] As a result, it becomes increasingly unlikely that the net result of increased protection in the market for the inframarginal innovation—in our example, the market for comedy films ($A1$–An)—will be positive.

---

124. *See* Yoo, *supra* note 1, at 254 (predicting the increased competition from strengthened copyright protections will drive prices closer to the marginal cost of works).

125. *See supra* notes 56–57 and accompanying text.

To recap, then, the inframarginal effects of this model's proposal on the market for film *A* and its close substitutes will be an increase in deadweight loss for some segment of consumer demand, which may (but also may not) be ultimately compensated by a decrease in deadweight loss for some other segment, but which decrease will in any case be purchased at the considerable cost of increased duplicative wastes. But, it might be asked, what about the fact that films *A*1–*An* will not be identical to film *A*, and hence not purely duplicative? Does this not mean that their entry potentially adds valuable variety, which must then be added to the benefits side of the ledger? Indeed it does, but on our view this is better analyzed as a supramarginal rather than inframarginal effect, and doing so allows us to bring into the analysis another, related but distinct, supramarginal effect that Yoo's model tends to obscure.

b. The Declining Benefits of Added Variety.—At stake in adjustments to copyright protection, as elaborated in subpart I(A), are effects not just on inframarginal innovations but also on supramarginal ones. To return to our example, level *X* of copyright protection was just enough to incent the creation of comedy film *A*. But what about sci-fi film *B*? Assume that the total demand for film *B* is roughly the same as for film *A*, but due to its reliance on expensive special effects, *B*'s development costs are much higher. Given these conditions, Film *B* will not be created under level of protection *X*. If, however, we increase the level of copyright protection to 5*X*, this will be just enough to enable its creation. At the same time, the increased level of protection—which, we are assuming, will be provided in a general manner applicable to both these innovations—will create additional surplus in the market for film *A* and will trigger the dynamic of differentiated entry described above. The costs and benefits that have to be taken into account include the effects both in the market for film *A* and in the market for film *B*.

Within that dynamic, comedies *A*1–*An* are, seen solely in terms of their added variety value, supramarginal to level *X* of copyright protection just like film *B*. If, as we have been supposing, each of these comedies is no more expensive to make than the first film *A*, a question arises as to why *A* was privately profitable to develop under protection level *X* but the others were not. The answer is that enough of the general market demand for comedies was satisfied by *A*, with the remainder that would have preferred, say, the differentiated substitute *A*1 not providing sufficient added sales under *X* level of IP to recover development costs. So when viewed in terms of its added variety value, *A*1 is supramarginal to *X* level of copyright.

The costs and benefits that have to be taken into account include, then, not only the effects in the market for film *A*, the focus of Yoo's analysis,

but also those in the market for film *B*, unanalyzed in the model. The inframarginal effects of increased protection are as described above.[126] To these we need to add in the supramarginal benefits from added variety and works in new markets. How does the model's prescriptions fare when the entire set of inframarginal and supramarginal effects is kept in view?

The default assumption adopted by Yoo seems to be that typically the net result of increased protection will be positive.[127] Yet the basis for this is unclear, since it is not evident why the benefits from increased entry—reduced prices and deadweight loss for some segment of demand along with increased variety—should necessarily outweigh the costs of duplicative wastes and increased prices for other segments. As explained, a decrease in deadweight loss cannot be assumed and, as will be explained shortly, the value of increased entry progressively declines. Thus, as the base level of differentiated competition increases, the positive inframarginal effect of inducing further competition decreases and the negative inframarginal one continues to accumulate at a steady rate. And similar tendencies toward declining benefit are likely to set in with respect to the two supramarginal effects of added variety and new works in distinct product spaces.

Assume that in the next iteration of our example we consider whether to further increase the level of copyright protection in order to attract the next supramarginal innovation film *C*. Film *C* is an action–fantasy film requiring expensive locations, the most advanced special effects, and a concentration of stars who must be paid stars' salaries. It will only be created if the level of copyright protection is 8*X*. Increasing the level of protection from 5*X* to 8*X* will create new available surplus in the market for film *B*, causing differentiated product competition along the lines described above. The same is true of the market for film *A* that will undergo a second wave of entry by differentiated products. At the starting point for this second iteration, however, the market for *A* is already relatively saturated with imperfect substitutes *A*1–*An*.

As this dynamic unfolds, with every additional increment of copyright protection the likelihood of a net positive effect drops. On the inframarginal side, the positive effect, if any, of increased competition on deadweight loss progressively declines while duplicative fixed cost of entry accumulates at a steady rate. Meanwhile, both kinds of supramarginal

126. It may be asked whether, just as the model misses out on supramarginal effects in markets other than for film *A* and its substitutes, may it also miss out on inframarginal effects in other such markets? The answer is that with respect to supramarginal effects, there are two distinct dynamics that need to be analyzed, as our following discussion explicates. The market for film *A* and its substitutes captures only one of these; hence the need to bring in the additional market. Regarding inframarginal effects, however, the dynamics in the market for film *A* and its substitutes can be taken to be representative of general inframarginal effects.

127. *See* Yoo, *supra* note 1, at 256 (suggesting that "economic welfare might be better promoted" by increasing copyright protection in certain circumstances).

benefits decline as the level of copyright necessary to attract them rises. New variety benefits decline as product space becomes more crowded because new entering films offer ever finer and therefore less valuable degrees of variety.[128] And for completely new supramarginal innovations, stronger copyright tends to have diminishing returns for a somewhat distinct reason.[129] The reason why certain innovations are supramarginal at relatively high levels of intellectual property protection is their high development cost. It is possible, of course, that a new innovation is so valuable that despite its large cost, its net value is at least as high as that of other innovations created at a much smaller cost. But it seems plausible to assume that in many cases within the realm of copyright, as costs increase, at least beyond a certain threshold, social value will not increase at a similar rate.[130] In those cases, while the net value of the innovation may still be positive, a larger part of the value is consumed by the mounting cost. The net result of this dynamic is that each increment of copyright protection purchases smaller supramarginal benefits for greater inframarginal costs.

In response to some (but not other) of these concerns, Yoo's model supplements its default stance with a precautionary measure aimed at curbing the costs of wasteful duplication. The measure: increase copyright protection along the dimension of breadth.[131] Whenever a product space seems so crowded as to raise significant demand diversion concerns, the model proposes broadening the substantial-similarity test to find more competitor works infringing and thereby push imperfect substitutes further away from each other. Quite apart from the significant doctrinal and administrability hurdles this faces,[132] this response seems unavailing on the substantive level. Forcing larger differences between differentiated products comes with the cost of reducing the intensity of their competition and thus foregoing their claimed beneficial effects on price and deadweight

128. In real markets for copyrighted goods, the value of increased variety is often expressed in more complex patterns than a choice by each consumer of one best tailored variant. In the real world, a consumer who is offered several songs or films may choose to consume many or even all of them. The basic dynamics of diminishing value to variety in increasingly crowded product space persists, however, even in the presence of such consumption patterns for two reasons. First, even when consumers consume numerous information goods, many of them don't consume all substitutes and therefore they are still making choices among groups of preferred variants. Second, even when many or all substitutes are consumed by a particular consumer, additional variants have a diminishing value, as evidenced by the higher marginal value of adding one song to a collection of ten compared to adding it to a collection of one thousand.

129. *See* Lemley, *supra* note 70, at 1057 ("[I]ncreasing the strength of intellectual property rights has diminishing returns in terms of encouraging marginal inventions of any value to society . . . .").

130. *See* Alan V. Deardorff, *Should Patent Protection Be Extended to All Developing Countries?*, 13 WORLD ECON. 497, 504–05 (1990) (providing a formal argument for this point in the patent context).

131. Yoo, *supra* note 1, at 263–64.

132. *See infra* sections II(A)(3)–(4).

loss. Yoo seems to recognize the inescapability of some trade-off here between his chosen levers: namely, that we either pursue the price–competition benefits of diversion-driven entry and then live with the cost of some duplication waste, or we seek to curb the latter and live with higher prices.[133] His response is for policymakers to pursue "a delicate balance" between these competing considerations, using the substantial-similarity test typically to narrow but sometimes to expand breadth, so as to "strike a difficult balance" between prohibiting too close substitutes and allowing substitutes that are close enough.[134] It is important to be clear that such a balance would not somehow finesse the trade-off by identifying circumstances in which gains from price competition may be realized without the costs of duplication waste; rather, the aim would be to pursue a joint level of price-reduction benefits and duplication costs that result in the highest net gain.[135] It is not clear, however, why a stronger level of copyright protection so optimized will tend to lead to a better result than a lower level, similarly optimized.

3. Doctrinal Difficulties.—A final set of problems facing the model relate to its proposals for how to calibrate the breadth of copyright protection. A number of crucial doctrinal ambiguities attend these prescriptions, and resolving them requires confronting precisely the sorts of policy trade-offs that the model hopes to transcend with the product differentiation framework. The model's proposals are that lawmakers should, as a default, adopt a narrow approach—so that only closely similar works are deemed infringing—while retaining the option, in certain instances, to an expansive view when that is necessary for reducing duplication wastes from demand diversion. These face the following conundrums: (1) to apply the narrow approach to copied works threatens copyright's basic incentive function, while restricting the prescription to independently created works renders it superfluous; (2) meanwhile, an expansive approach to breadth—whether applied solely to works involving copying or also (through reform) to independently created works—is likely not very doctrinally feasible and, in any case, would considerably undercut the price-competition benefits sought elsewhere in the model.

Consider first the default prescription of narrow breadth: is this to apply to cases of independent creation or to copying (or to both)? Applied to the former, so that independently created works should be deemed non-infringing even when they are quite similar to the original, the recommendation would seem to be inert, as American copyright law is

133. Yoo, *supra* note 1, at 272.

134. *Id.*

135. Unfortunately, no factors are identified in the model for how to pursue that joint optimum.

already there. Indeed, a fundamental feature of copyright law (one that distinguishes it from patents) is that independent creation is *never* an infringement. Copying is an essential element of an infringement claim, without which there is no relief, even against the unlikely case of an exact identical work.[136] In this sense, American copyright law has zero "breadth": in principle, it allows not only close, but indeed perfect, substitutions of protected works so long as they are independently created.

Perhaps, then, the prescription is meant to apply not to independently created works but to those works whose similarity to the original is attributable to copying. That is, the close substitutes to be allowed entry under a narrow approach are simply copies of the original that fall short of being verbatim (with the requisite distance to be determined by the breadth standard). This approach, however, raises difficulties of its own. Where an expressive work's close similarity is attributable to copying, that will often mean that the copier incurred substantially lower fixed cost of development or entry. This points to an important distinction between information and non-information goods with respect to differentiated competition. If I open a coffee shop that competes with yours and "copies" most of the features of your product, nevertheless my fixed costs of entry will likely remain quite similar to yours. However, for information goods, where a very substantial part of the fixed cost is attributable to developing the informational content of the product, a subsequent competitor who offers a very similar work due to copying is likely to incur a much lower entry cost. Copying is typically much cheaper than creating.[137] The implications of this for how differentiated-product models work in the copyright context are likely to be considerable. Although such models do not require precisely equal fixed costs being incurred by all entrants, substantial differences between the costs of the creator/incumbent and those of the imperfect copiers/latecomers will produce a very different competitive equilibrium than one premised on roughly equivalent fixed costs. Most importantly, copiers who incur significantly lower fixed costs can recoup their investments at much lower prices than the original creator, and thus competitive entry will result in a much lower equilibrium price than if all entrants incur fixed costs similar to that of the incumbent/creator. Given fierce enough competition, the price may drop to a level that does not enable the creator to recoup its original fixed costs, robbing copyright of its basic incentive function.

---

136. *See* Sheldon v. Metro–Goldwyn Pictures Corp., 81 F.2d 49, 54 (2d Cir. 1936) (explaining that the unlikely independent creation of John Keats's "Ode on a Grecian Urn" would merit separate copyright protection).

137. *Cf.* Rufus Pollock, Innovation and Imitation With and Without Intellectual Property Rights 7 (Jan. 2008) (unpublished manuscript), *available at* http://rufuspollock.org/papers/innovation_and_imitation.pdf (modelling imitation as being costly, but still significantly less costly than innovation).

A different set of conundrums faces the secondary proposal, that we may sometimes wish to expand breadth when it seems advisable in order to curb a high likelihood of demand diversion by dampening the entry of substitute works. Here again, we face a threshold question: is such an expansive approach to be applied only to disallowed copied works or also to find even independently created works infringing? The latter would require, of course, a far-reaching reform of existing doctrine which, as just stated, currently takes the non-infringing character of noncopied works to be a fundamental principle.

Restricting the proposal to copied works faces a significant doctrinal hurdle: namely, that it would seem to involve quite a far-reaching reworking of current rules for them to serve this policy function. Existing tests for substantial similarity are accompanied by rules that prevent finding the use of stock characters, situations, and plot devices as infringing.[138] Yet it is precisely those sorts of similarities in stock patterns—patterns adapted and transformed in various ways to respond to evolving changes in style and taste—that make, for instance, different mystery novels or action films overlap enough to compete for the summer beach reading and blockbuster markets. Ratcheting up breadth to curb such diversion-driven duplication—as opposed, say, to dampening the overall incentives provided for such activity to begin through lower general levels of protection—would likely require going further up Learned Hand's "series of abstractions" than most courts would feel comfortable with.[139]

4. Administrability Considerations.—As may be apparent by now, the informational burden on lawmakers seeking to follow the prescriptions flowing from product differentiation theory is not likely to be less onerous than that imposed by a more traditional incentive–access analysis. Far from being able to follow a more or less simple and stable set of doctrinal guidelines, and then leaving it to the market to calibrate prices to achieve efficient results, the agencies making and applying copyright law will be required to engage in a complex, demanding, and perhaps constantly shifting balancing act. Consider for instance the proposal of adjusting the

---

138. Two main doctrines prevent protection for stock characters and other expressive elements: *scènes à faire* and the idea–expression dichotomy. The *scènes à faire* doctrine denies copyright protection to expressive elements that are indispensable or standard within a particular genre or subject. *See, e.g.*, Incredible Techs., Inc. v. Virtual Techs., Inc., 400 F.3d 1007, 1011–12 (7th Cir. 2005); Cavalier v. Random House, Inc., 297 F.3d 815, 822–23 (9th Cir. 2002); Computer Assocs. Int'l Inc. v. Altai, Inc., 982 F.2d 693, 709 (2d Cir. 1992); Hoehling v. Universal City Studios, Inc., 618 F.2d 972, 979 (2d Cir. 1980); Schwarz v. Universal Pictures Co., 85 F. Supp. 270, 275 (S.D. Cal. 1945). The idea–expression dichotomy denies protection to expressive elements on a high level of abstraction such as general plot lines, concepts, or types of characters. *See* Holmes v. Hurst, 174 U.S. 82, 86 (1899); Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930).

139. *Nichols*, 45 F.2d at 121.

substantial-similarity test to achieve an optimal balance between allowing competition, to realize its price and variety benefits, and limiting it, to curb undue levels of demand diversion. The substantial-similarity test is one of the more elusive and harder to predict areas of copyright doctrine,[140] with a variety of different approaches deployed by the courts,[141] including vague formulations such as comparing the "total concept and feel"[142] of the relevant works. It is difficult to imagine judges or juries finely calibrating such amorphous guidelines in order to track the optimal balance between product density and competitive fierceness in a particular market. Such adjustments demand very high, perhaps prohibitive, levels of empirical information and skill; likely no less and perhaps more than under the traditional incentive–access approach.

The task assigned to courts in the case of substantial-similarity analysis is an especially salient example, but the point holds more generally for attempts to adjust copyright in light of the lessons of product differentiation theory, once we see that these lessons cannot persuasively be reduced to relatively simple and uniform guidelines. Calibrating copyright on the basis of the trade-offs involved along the various supramarginal and inframarginal parameters requires predicting a host of complex effects in multiple markets and then attempting to fine-tune doctrines that are not always well-suited to the task. By comparison, evaluating costs and benefits under only the two parameters of the traditional incentive–access framework appears a somewhat more manageable enterprise.

We do not mean to suggest, of course, that the complexity of a theory's doctrinal and policy implications in itself serves as a criticism of said theory's substantive merits, in terms of either explanation or evaluation. Rather, our point is simply that such complexity should give pause when it comes to embracing the theory's prescriptive relevance, and should motivate further reflection on second-best, comparative considerations regarding what kinds of necessarily rough judgments or imprecise proxies are most plausible to distill and implement as the theory's take-home lessons. In any case, the point of complexity is of particular salience where, as here, among the main merits touted for the theory are its advantages over alternative frameworks in providing simple, tractable guidelines for legal-policy decisions.[143]

---

140. Peter Pan Fabrics, Inc. v. Martin Weiner Corp., 274 F.2d 487, 489 (2d Cir. 1960) ("The test for infringement of a copyright is of necessity vague."); NIMMER ON COPYRIGHT, *supra* note 98, § 13.03[A], at 13-37 (explaining that determining substantial similarity "presents one of the most difficult questions in copyright law").

141. For a survey of the different tests, see NIMMER ON COPYRIGHT, *supra* note 98, § 13.03[A][1].

142. Sid & Marty Krofft Television Prods., Inc. v. McDonald's Corp., 562 F.2d 1157, 1167 (9th Cir. 1977); Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1110 (9th Cir. 1970).

143. *See* Yoo, *supra* note 1, at 223–24, 258–59.

Similar considerations apply to the theory's implications for the public-choice aspects of the copyright system. The more complex and information-demanding the model upon which decisions about shaping and applying the law are based, the more vulnerable such decisions may be to manipulation by private rent-seeking efforts to tilt such decisions in their favor. Moreover, product differentiation theory itself helps explain why copyright policy, especially when oriented toward increasing the scope and intensity of protection, is likely to attract high levels of rent seeking. Increased protection offers early entrants in inframarginal markets the lure of short-term supernormal returns. To be sure, as explained above, such rents are assumed to dissipate in the long run, as a result of differentiated entry (at least if they follow the more optimistic predictions about price effects).[144] Nevertheless, each increase in protection will leave behind a larger number of early incumbents, who now have an entrenched interest in extending their advantages through further rounds of protection increases and the additional short-term rents they hold out.

B. Weak(er) and Broad

1. Summary.—Two sets of doctrinal proposals lie at the heart of this model. First, the strength of copyright protection should generally be weaker than that assumed optimal under traditional economic analysis.[145] Second, the breadth of protection should be wide, to enable owners of existing works to control the creation of subsequent works even where their similarity to the original is fairly remote and abstract.[146] While the two principles may appear to conflict, they both stem from the same theoretical lesson drawn from product differentiation. Here, the model's principal takeaway is not the price-reducing benefits of differentiated competition, but rather the demand-diversionary drawbacks of such competition. Focusing on these drawbacks results in a mirror-image prescription to the foregoing: weak and broad versus strong and narrow copyright.

Given the centrality of demand diversion to the analysis that follows, it is worth briefly further explicating its basic logic and elaborating on its core implications. There exists a misalignment between private-firm incentives and social welfare in the context of differentiated competition, one enhanced by IP protection. Firms are indifferent as to whether their sales are generated through new satisfaction of consumer demand (demand creation) or through the siphoning of demand already met by other firms

144. *See supra* note 77 and accompanying text.

145. Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 41. Abramowicz does not employ Yoo's distinction between scope and intensity, and so the strength of copyright is indiscriminately understood as the combined effect of both dimensions.

146. *See* Abramowicz, *Copyright's Derivative Right*, *supra* note 1, at 329–31.

(demand diversion).[147] So long as the available surplus in a particular market can cover its capitalized costs, a firm will enter irrespective of whether revenues come from demand creation or diversion. But only when the social benefit from increased demand satisfaction outweighs the firm's costs will entry be socially efficient. Consider, for example, a firm that faces the decision of whether to enter the market for this summer's silly teenage comedy. Assume that the market is already saturated with films, so that any new film created will be very similar to others already on offer, and thus generate only miniscule added social value in the form of satisfying tastes of a subset of consumers that the others won't to the same extent. Nevertheless, if the size of the appropriable market for silly teenage comedies (something strongly shaped by the strength and size of copyright entitlements) is large enough that the firm will be able to cover its costs by diverting consumers from existing films, it will choose to enter. Where the firm's costs are greater than the social value of the small new demand satisfied by its film, we have a case of over-entry, with net social loss.

Demand diversion bears two overlapping but distinct implications for copyright trade-offs. The most straightforward are cases of "over-entry" proper, when the new variant costs more than its added social value. These represent instances where providing an incentive, standing on its own, results in a net social loss. Thus, the added incentive should be avoided even before we consider any of its detrimental by-products, such as decreased access for other works. In the second case, even when demand diversion falls short of producing a net loss, it still reduces the social value of added entry. As a market becomes saturated with close substitutes, the added value of each further entry declines progressively, even prior to the point where the next entry would constitute an actual net social loss. Consequently, although there remains some value in providing incentives for such entry, that value should be discounted when evaluating it against the access costs over other inframarginal works.[148] Demand diversion sensitizes us, that is, to the prospect that incenting the creation of another multi-million dollar film in a crowded product space may be of possibly much less value than that indicated by its sales, due to the availability of many other, similar films.

From these implications, a first set of doctrinal recommendations directly follows: copyright protection, especially for markets that seem crowded with close substitutes, should be made weaker than previously assumed. As the social value of works resulting from additional increments of protection declines, the incentive benefits of heightened protection will be outweighed sooner by its mounting social costs from curtailed access, something missed by a traditional view that assesses incentive benefits

147. Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 39.
148. *Id.* at 40–43.

without factoring in demand diversion.[149] The upshot: where entry is significantly diluted by demand diversion, weaker protection, with its associated levels of increased access, finds greater support. This conclusion may be pursued in several doctrinal contexts. It urges a relative willingness to excuse certain subsets of potentially infringing activity, or to tolerate nonenforcement against them.[150] Similarly, the fair use doctrine should be applied liberally, allowing many secondary uses of copyrighted works to escape liability,[151] especially if certain fair use factors can be calibrated to capture cases in which demand diversion is likely to be high.[152] Finally, this view provides a more robust justification for the various exemptions and limitations on protection in the Copyright Act,[153] by highlighting the possibility that their total social cost, in the form of decreased incentive for entry, is not as high as previously thought.

In addition to simply scaling back copyright protection to reduce incentives for demand-diversionary activity, a proposed second set of adjustments take a very different tack. These aim to *enhance* certain aspects of protection, so as to provide tools for actively blocking, rather than simply reducing the incentives for, over-entry. Certain doctrinal levers, that is, may be used to legally constrain duplicative and wasteful entry to markets that are likely to involve high "density" of product space.

The most important such doctrinal lever is copyright's expansive entitlement over preparing derivative works.[154] On a standard incentive rationale, the case for an expansive derivative-works right seems tenuous.[155] The entitlement allows creators to capture a larger chunk of the social value traceable to their works. And these higher returns may, of course, enable the creation of some works that otherwise would not have recouped their costs of development. This possible incentive benefit comes, however, with concerns over potentially high transaction costs and deadweight loss in the markets for secondary uses of works that would have been created even in the absence of the entitlement. Whether the social value of the supra-marginal works generated by the entitlement outweighs the costs over inframarginal ones is highly uncertain.[156] Product differentiation theory, however, offers an additional rationale, one that may justify the entitlement even in the face of indeterminacy or outright skepticism from a standard

149. *Id.* at 41.
150. *Id.* at 100.
151. *Id.* at 37, 41.
152. *Id.* at 108–09.
153. *See, e.g.*, 17 U.S.C. §§ 108, 110, 121 (2012).
154. *Id.* § 106(2).
155. *See* Abramowicz, *Copyright's Derivative Right*, *supra* note 1, at 326–32 ("The incentives justification for the derivative right thus rests on an enthymematic and uncertain empirical claim, that the increase in the number and quality of original works that the derivative right effects more than offsets any decrease in the number of derivative works.").
156. *Id.* at 329.

incentive–access point of view. The derivative-works right can help address the problem of demand diversion, by serving to prevent wasteful excessive entry in the derivative market.[157] Since derivative works are rarely close substitutes of the original work, the main concern addressed by the doctrine is that of wasteful competition in each of the derivative markets.[158] It addresses, that is, not demand diversion between a flurry of *Dune* computer games and the original Frank Herbert novel, but rather that of demand diversion across the various *Dune*-based computer games themselves. By placing in the hands of the copyright owner a centralized right to control entry to all derivative markets, the entitlement thus prevents this specter of wasteful excessive entry in these markets.[159]

A similar logic supports a broad breadth for copyright's reproduction entitlement.[160] Independent of the derivative-works entitlement, copyright's basic prohibition on unauthorized copying of the original encompasses a large area. This area stretches to include levels of similarity that go well beyond the ordinary meaning of the term "copy," and covers elements such as characters, plot lines, and well-delineated general themes.[161] Once again, justification for this extensive breadth under traditional economic analysis hinges on the somewhat precarious and hard-to-verify assumption that the value of increased incentives generated by broader protection outweighs the concomitant costs. And once again, a stronger and clearer rationale may be found in the fact that this wide breadth of protection guards against wasteful excessive entry. Excessive entry in which market? The argument seems to be that, given the current reluctance of many courts to demarcate clearly the borderline between the reproduction and derivative-works entitlements, the reproduction entitlement performs this role in regard both to competition between the original and works that are close substitutes for it, and to competition between derivative works that are close substitutes for each other.[162] A more coherent doctrine, however, would create a division of labor, with the derivative-works entitlements applying to the latter situation (e.g., the competition between various computer games based on the film *Lord of the Rings*) and the reproduction entitlement applying to the former (e.g., the competition between the original *Superman* and *Wonderman* comic books).[163]

---

157. *Id.* at 357–59.

158. *Id.* at 358.

159. *Id.* at 359.

160. *Id.* at 363.

161. *See id.* at 332–33 (noting that copyright protection in general extends beyond whole works and also encompasses characters, plots, and themes).

162. *Id.* at 334–35.

163. *See id.* at 373 (using demand diversion as a tool to determine whether the reproduction right or derivative right is infringed once it is established that the works are substantially similar).

To summarize, Abramowicz derives two central doctrinal guidelines from product differentiation theory. Both of these justify outcomes that may diverge significantly from those supported by the traditional incentive–access framework. First, due to the dilutive effect of wasteful competition between close substitutes on the social value of incentives created by copyright protection, the strength of this protection should be weaker than conventionally assumed. This supports doctrinal features such as a liberal fair use defense, various other statutory exemptions and limitations, and a readiness to tolerate certain levels of possibly infringing activity. Second, an extensive derivative-works right and a capacious reproduction right may serve the function of directly limiting wasteful competition between close substitutes by creating centralized entitlements to control entry to markets vulnerable to such a dynamic. Copyright protection, in sum, should be made relatively weak but broad.

How does this model hold up? The claim for discounting the incentive benefit of copyright protection is correct on its own terms. It obscures, however, the fact that other parts of the analysis potentially change when the insights of product differentiation theory are applied. The upshot of applying product differentiation theory, that is, may not be simply the traditional model with a discounted incentive value, but rather a completely different framework for analysis. This same framework should then also guide assessment of the second argument—for broad copyright as an active restraint on harmful demand diversion—which suffers from more serious difficulties. The prescribed means for achieving this goal—broad protection with regard to derivatives and partial reproductions—involve a host of other implications brought to light once we adopt the more appropriate framework, including the prospect of fueling a wasteful race for the initial innovation, costs within the markets of the secondary works, and effects of centralized control over the rate and quality of subsequent innovation. When these implications are considered, the case for broad copyright based on product differentiation theory becomes precarious.

2. Discounting the Benefit of Increased Incentives.—In markets featuring a high degree of differentiated competition, the basic insight that the value of new works should be discounted at an increasing rate as product density rises is correct, for reasons elaborated above.[164] The ninety-fifth variation of a Hungarian cookbook provides less added value, diverting more existing demand, than the first central European cookbook. To understand its full implications, however, the point needs to be put in broader context.

Consider first the relevance of the distinction between inframarginal and supramarginal innovations. The need to discount the value of new

164. *See supra* text accompanying notes 120–30.

works applies mainly to inframarginal markets, since it is in these that a new work will serve predominantly as substitute for existing ones.[165] The distinction between inframarginal and supramarginal *works* versus *markets*, briefly alluded to above, is a nuanced one that we now flesh out. Under the traditional framework, the distinction is not operative: all works not enabled by a certain level of protection are simply understood as supramarginal *works* simpliciter. Within the product differentiation framework, however, such a supramarginal work may be close enough to one or more existing works to serve as a partial substitute, and thus be taken to serve an inframarginal *market*. This may lead one, then, to the opposite conclusion from the traditional framework, that all works operate in inframarginal *markets*. That, however, would be hasty: *works* not enabled by a certain level of protection are most usefully termed "supramarginal" to that level of protection, while it remains a further question the extent to which such supramarginal works are best understood to be operating in inframarginal or supramarginal *markets*. And regarding this latter point, although not all expressive works are partial substitutes for each other,[166] it is likely that every expressive work is, at least to some extent, a partial substitute for some others. The high-budget, action–sci-fi film and the detective television drama are likely partial substitutes in the sense that, depending on price levels, some consumers may be willing to buy and consume one instead of the other. The same may hold, even if to a lesser extent, for the sci-fi film and a Civil War documentary. Nevertheless, a relative distinction between those supramarginal works operating in inframarginal markets versus those operating in supramarginal markets does seem plausible and useful. At each level of copyright protection, some works that remain under-incentivized may be so remote from existing works that their effects as (very) imperfect substitutes are negligible. And thus from an analytic point of view, it makes sense to ignore the negligible effect of these works in inframarginal markets as partial substitutes of existing works and focus entirely on their character of serving new supramarginal markets.

Understood within this frame, the claim of demand diversion takes on a dual significance. First, as additional increments of copyright are added and product density rises, the value of each new work within existing inframarginal markets decreases due to increased demand diversion. Second, as this process unfolds more generally, more and more *markets* themselves may come to be classified as inframarginal, in the sense that new innovations in them are predominantly imperfect substitutes for existing works rather than entirely new ones. The distinction between these

165. Although the same dynamic may apply to supramarginal markets where an increase in protection is large enough to attract not only one heretofore under-incentivized supramarginal work, but multiple, differentiated variants.

166. For example, a computer operating system written in object code is not usefully taken, for purposes of this analysis, to be a substitute for a bronze sculpture even to a minor extent.

matters, to the extent that the factors helping us determine whether an existing product space or market is crowded, differ from those helping us identify the existence or lack thereof of relatively embryonic or new product spaces/markets. Analyzing innovations as product variants in inframarginal markets alerts us to their progressively declining net social value as product space becomes crowded. To be sure, a similar tendency toward declining net value attends supramarginal innovations in general, due to rising development costs.[167] And from one perspective, the dynamic driving both tendencies is the same: namely, that innovations supramarginal to a given level of protection are those for which the ratio of added value to development costs is lower than for inframarginal ones, and innovations with such lower ratios will tend to provide lower overall net benefit.[168] Nevertheless, maintaining a distinction between works in inframarginal and supramarginal markets helps us track two distinct sources for this dynamic: innovation from which the added gross benefit is increasingly small (product variants) and those from which the added gross benefit may well be large but for which development costs are also increasingly high.

This has important implications for how the discounted value of incentives should be located within the more general scheme of product differentiation. Take for example the "performance of a nondramatic . . . musical work . . . in the course of services at a place of worship or other religious assembly"—an activity currently exempted by the Copyright Act.[169] Assume (perhaps implausibly) that the inability of copyright owners to internalize the value of their works in such activities reduces to a non-negligible extent the incentive to create musical works. As explained, this negative incentive effect should be discounted to the extent that the market is already crowded with many variants of musical works. Under such conditions, a substantial part of the potential market value of the works not being created is attributable to demand diversion. One may be tempted to incorporate this insight into the traditional incentive–access framework, namely by comparing this discounted incentive benefit of abolishing the statutory exemption to the traditional corresponding gain of reduced copyright protection—lower deadweight loss in the same market.[170]

That, however, would be too quick. Taking product differentiation seriously requires revising the analysis in two ways. First, the discounted incentive benefit should be compared to deadweight loss effects under conditions of differentiated competition, not to those predicted by the

167. *See supra* text accompanying notes 123–24.

168. *See supra* text accompanying notes 123–24.

169. 17 U.S.C. § 110(3) (2012).

170. *See* Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 37, 41 (arguing that "[t]he importance of incentives to produce new works" decreases as the number of existing works increases, because "the proportional increase in the size of the market attributable to a new work generally will be greater than the proportional increase in social welfare").

traditional model. Recall that depending on assumptions about the effect of entry on price, deadweight loss may increase if protection is strengthened (e.g., by removing the exemption), but contrary to the traditional model, it may also decrease or even remain constant.[171] Second, similar to Yoo, Abramowicz seems to assume that both the incentive benefit and deadweight loss effects occur in a single inframarginal market.[172] But the effects of a particular doctrinal feature take place in what is conveniently understood as an array of markets with different characteristics. Some new works may be incentivized by the relevant increment of protection in markets that are best understood as supramarginal. In our example, in the absence of the exemption, some otherwise nonexisting musical works that have no close substitutes in inframarginal markets may be created. In regard to those works, a high baseline of copyright protection should cause us to discount the incentive value only in the sense that such works are likely to generate relatively low net benefits due to rising development costs. Other new works may be created in inframarginal markets that are only moderately crowded. In our example, these would be otherwise nonexistent musical works that are partial substitutes for existing ones but better satisfy the tastes of some consumers in a nontrivial way. Here, the incentive value is likely to be positive but discounted relative to the traditional model due to the fact that some of the value of the new works represents demand diversion. Other works still would be created in already highly crowded inframarginal markets. Thus, the occurrence of some new musical variants in the absence of the exemption in highly dense markets would only trivially improve the satisfaction of specific consumer tastes. In regard to these works the net incentive value would be negative. The small fraction of the value of these works representing demand creation would be outweighed by their development cost. The relevant doctrinal feature should be assessed by aggregating its effect over this entire array of markets: deadweight loss effects as well as discounted and negative incentive effects in different inframarginal markets, combined with net incentive effects in supramarginal markets.

The net effect, then, is not a cost–benefit analysis carried out under the traditional framework, only now with a discounted incentive value on the benefit side, but rather a totally different framework. This new framework may not only generate different results in specific cases but also identifies a distinct set of parameters relevant to estimating the effects of any particular feature of copyright law.

3. Copyright as a Restraint on Demand Diversion.—What of the second main conclusion, endorsing broad copyright protection as an active

171. *See supra* section II(A)(1).

172. *See* Abramowicz, *An Industrial Organization Approach*, *supra* note 1, at 39–42.

restraint on wasteful duplicative entry in primary and derivative markets? The claim here, recall, is that product differentiation theory can provide a firm justification for a broad infringement test and a robust derivative-work entitlement, even when the case for such doctrines under the traditional framework is at best inconclusive and perhaps precarious.[173]

This position is, of course, a variant of an argument famously made by Edmund Kitch in the patent context many years ago.[174] In his prospect theory, Kitch explained that a primary benefit of patents (especially early and broad patents) is their restraining effect on the potential inefficiencies and wastes associated with the innovation process.[175] Prospect theory's main insight was that innovation is often a continuous and long process,[176] one that, as previously observed by Yoram Barzel, constitutes a common pool open to all.[177] The upshot of this insight is that in the absence of a coordinating authority, the activities of competing private actors may generate much waste.[178] While Kitch enumerated many possible wasteful effects of an uncontrolled rivalrous innovation process,[179] the one that later scholarship has identified most closely with his theory is the very cost that underlies Abramowicz's argument: the duplicative development costs invested by competing parties who strive to develop or perfect the same invention. Patents, Kitch explained, prevent such waste by installing the patentee as a single actor who internalizes all the costs and benefits of the process of innovation and who has centralized power to control and coordinate that process.[180] Occupying this position, patentees have the incentive and legal power to optimize the innovation process, whether through their own activities or the licensing of others. Abramowicz's characterization of broad copyright as a means for restraining over-entry is

---

173. *See supra* section II(B)(1).

174. *See* Kitch, *supra* note 41, at 265–66, 268 (summarizing prospect theory of the patent system).

175. *Id.* at 266.

176. *See id.* at 276 ("In the case of many patents, extensive development is required before any commercial application is possible . . . .").

177. Yoram Barzel, *Optimal Timing of Innovations*, 50 REV. ECON. & STAT. 348, 348–49 (1968).

178. *See* Kitch, *supra* note 41, at 266 (asserting that the process of technological development "can be undertaken efficiently only if there is a system" in place to manage competing concerns and "assure efficient allocation of . . . resources").

179. *Id.* at 276–79. Indeed, Barzel in his earlier article was not even concerned with the duplicative efforts of rival innovators. His main concern was that rivalry may lead an innovator to invent and patent too early, at the point when expected returns outweigh the costs of innovation, rather than when such returns are maximized. *See* Barzel, *supra* note 177, at 349 (expressing concern that "competition among potential innovators" prompts such innovators to introduce innovations "when they become profitable" rather than "at their optimal dates").

180. Kitch, *supra* note 41, at 276 ("[Exclusive ownership] puts the patent owner in a position to coordinate the search for technological and market enhancement of the patent's value so that duplicative investments are not made and so that information is exchanged among the searchers.").

thus a reincarnation of this theory in the copyright context. The owner of copyright in an initial innovation is Kitch's prospect owner. He serves as the coordinating actor who is vested with the incentive and power to ensure optimal further innovation and avoid waste, both in the market for the initial innovation and its close substitutes (through a capacious reproduction entitlement) and in markets for follow-up innovations (through a broad derivative-works entitlement).[181]

The close resemblance of the argument for broad copyright as restraint on over-entry to prospect theory exposes its vulnerability. Although far from defunct, prospect theory has been subject to substantial criticisms.[182] And many of these are equivalently applicable to the copyright variant of the theory. Further, in our view the copyright version also faces additional concerns, stemming from considerations specific to creativity in expressive works.

Scholarship in the wake of Kitch pointed out that once we fully internalize the point that innovative processes are continuous in character, endowing a private party with centralized control over the process is hardly a flawless solution.[183] To reduce waste by creating strong coordination power at one point along the process (even a relatively early one) may simply exacerbate the problem at other junctures. A broad patent right allowing the owner to control future innovation, it has been pointed out, substantially increases the value of the "prospect" embodied in such a

---

181. Arguably prospect theory fits copyright even better than patents. One of the main critiques of prospect theory was that patents, in fact, do not create exclusive power broad enough to allow the patentee to control and coordinate future innovation. *See* Roger L. Beck, *The Prospect Theory of the Patent System and Unproductive Competition*, *in* 5 RESEARCH IN LAW AND ECONOMICS 193, 195 (Richard O. Zerbe, Jr. ed., 1983) ("[A] patent legally may protect only what the inventor actually invented *prior* to applying for the patent, which fails to support the assertion of the prospect theory that a patent monopolizes future invention."); John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 445–46 (2004) (propounding that "the partial property rights actually conferred by a patent" may not be "sufficient in scope to permit a patentee to coordinate further development" in the way contemplated by prospect theory).

182. *See* F.M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 446 (2d ed. 1980) (arguing that prospect theory may be "oversimplifying complex relationships"); Beck, *supra* note 181, at 207 (finding results that "support[] rejection of the prospect theory"); Duffy, *supra* note 181, at 441–43 (noting the controversy surrounding the prospect theory and specifically highlighting issues regarding the theory's conception of rivalry); Grady & Alexander, *supra* note 41, at 313–16 (claiming that prospect theory "understated the benefits of the patent system"); Donald G. McFetridge & Douglas A. Smith, *Patents, Prospects, and Economic Surplus: A Comment*, 23 J.L. & ECON. 197, 198 (1980) (criticizing that prospect theory "do[es] not preserve economic surplus"); A. Samuel Oddi, *Un-unified Economic Theories of Patents—The Not-Quite-Holy Grail*, 71 NOTRE DAME L. REV. 267, 269 (1996) (explaining that prospect theory "has been highly controversial and criticized by various commentators").

183. *See* Grady & Alexander, *supra* note 41, at 317 ("Central coordination theory neither dispenses with all rent dissipation concerns nor explains many patent decisions."); McFetridge & Smith, *supra* note 182, at 198 ("The prospect characteristics of [patents] do not preserve economic surplus because they do not extend the domain of exclusivity to cover the entire innovative process.").

right.[184] Consequently, we lure more entrants into the contest to acquire the prospect, catalyzing a race to develop the initial innovation, one coming with its own duplicative wastes.[185] Whether it is better to deter wastes, or conversely fuel patent races, at earlier or later stages of technological innovation cannot be determined a priori or in general, but rather requires an inquiry into specific features of the innovation context.

The exact same dilemma applies to the copyright context. Consider the derivative-works entitlement. The control power of the copyright owner over innovation in all derivative markets prevents wasteful duplicative development and over-entry of close substitutes in these markets. Thanks to this power, the hit adventure movie of the summer results in only one rather than five computer games, one rather than four manufacturers of action figures, and two rather than eight comic books. But the revenue derived by the copyright owner from exploiting the derivative markets, or licensing others to do so, substantially increases the surplus available in the primary market, thereby luring more entrants at that stage. For example, in the absence of the extra value created by the derivative-works entitlement, there might be ten variants contending for the spot of the hit adventure movie of the summer. Given the existence of the entitlement, however, there might be eighteen such contenders, each constituting a close substitute for the others and representing a high degree of demand diversion. It is impossible to determine in the abstract which effect is more costly: the over-entry in the derivative markets depressed by the derivative-works entitlement or the over-entry in the primary market fueled by it.

a. Doctrinal Obstacles.—The argument for a broad derivative-works right would be stronger if copyright doctrine could be plausibly calibrated to follow rent dissipation concerns. Unfortunately, copyright doctrine tracks such concerns in an inconsistent and weak manner at best.[186] And reform of the relevant doctrines—to make them more pliable tools for addressing rent dissipation—is highly unlikely given their deeply entrenched status in our copyright system, with roots in concerns quite removed from rent dissipation analysis.

Consider first whether the doctrine could be used to roughly identify those cases where the cost of wasteful over-entry will tend to be clearly higher in secondary markets, and then limit a broad derivative-works right

184. *See* McFetridge & Smith, *supra* note 182, at 202 ("[T]he prospect features of the patent can bring about a surplus-increasing postponement of commercialization . . . .").

185. *See* Grady & Alexander, *supra* note 41, at 316–17 (arguing that a pure prospect patent system "would maximize rent dissipation among pioneer inventors"); McFetridge & Smith, *supra* note 182, at 198 ("[T]he award of an exclusive right to commercialize relatively early in the innovative process can result in a surplus-increasing postponement of commercialization but . . . this is dissipated in a resource-using rivalry for the patent itself.").

186. *But see* Abramowicz, *Uneasy Case for Copyright*, *supra* note 1, at 1667 (suggesting the fair use doctrine "tends to excuse infringement where the otherwise infringing activity is less likely to result in rent dissipation associated with the production of redundant works").

to these.[187] Thus, in the patent context Mark Grady and Jay Alexander have suggested that works of modest value that signal great potential for follow-on derivatives merit broad rights—to prevent the more likely secondary-stage races—while highly valuable works with limited potential for follow-ons should get weaker protection—so as to discourage entry at the primary level.[188] To the extent that copyright considers the value of a primary innovation at all, however, it tends to provide stronger protection to more valuable innovations. And it does so irrespective of any signal for many or few follow-on derivatives. The most relevant doctrine—originality—sets a low bar for copyrightability[189] that does not distinguish between works on the basis of their social value.[190] Indeed, to the limited extent that the scope of protection is influenced by the value of the work, no connection to the recommendations of rent dissipation concerns is discernable. Thus, under the concept of "thin protection,"[191] works that exhibit only a meager amount of the creativity required to satisfy the originality bar receive a small amount of protection, while highly creative works enjoy a broader scope of protection.[192] A similar logic underlies the "nature of the copyrighted

187. Grady & Alexander, *supra* note 41, at 318 ("Broad patent protection avoids a rush to develop and patent trivial improvements, but, by creating extremely valuable monopolies for inventors, broad protection can induce a rush to patent original concepts. Courts have managed to reconcile these apparently divergent effects by adjusting patent scope on a case-by-case basis."). Others have questioned whether patent doctrine optimally distinguishes cases that merit broad patents from others that do not. *See* Fisher, *supra* note 12, at 183 ("[The Grady and Alexander] typology, though intriguing, has many defects, both practical and theoretical.").

188. Grady & Alexander, *supra* note 41, at 320–21. Grady and Alexander also suggest that "valuable innovation[s] that cannot be improved upon" should get no patents at all, a treatment that would avoid waste at both levels. *Id.* at 321.

189. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) (explaining that originality requires "only that the work was independently created by the author (as opposed to copied from other works)," and a "minimal degree of creativity" that can be met with "even a slight amount" of creativity); 1 NIMMER ON COPYRIGHT, *supra* note 98, § 2.01[B], at 2-12 ("[T]he line to be drawn includes almost any independent effort on the side of sufficient originality.").

190. Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 (1903) ("It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations, outside of the narrowest and most obvious limits."); Alfred Bell & Co. v. Catalda Fine Arts, Inc., 191 F.2d 99, 103 (2d Cir. 1951) (citing *Bleistein*, 188 U.S. at 250) ("No matter how poor artistically the 'author's' addition, it is enough if it be his own."); 1 NIMMER ON COPYRIGHT, *supra* note 98, § 2.01[B], at 2-13 ("The *Bleistein* doctrine that judges may not properly assay artistic merit has found expression in many succeeding cases where the author's creative contribution was of a much humbler and more minimal nature than in the Bleistein poster.").

191. The source of the term "thin protection" is in the Supreme Court's description in *Feist* of the scope of copyright in factual compilations as "thin." 499 U.S. at 349.

192. Satava v. Lowry, 323 F.3d 805, 812 (9th Cir. 2003) (stating that where the original elements are limited, the copyright owner "possesses a thin copyright that protects against only virtually identical copying"); Beaudin v. Ben & Jerry's Homemade, Inc., 95 F.3d 1, 2 (2d Cir. 1996) ("Where the quantum of originality is slight and the resulting copyright is 'thin,' infringement will be established only by very close copying . . . ."); Apple Computer, Inc. v. Microsoft Corp., 35 F.3d 1435, 1439 (9th Cir. 1994) ("When the range of protectable . . . expression is narrow, the appropriate standard for illicit copying is virtual identity."). In contrast

work" factor of the fair use doctrine.[193] Under the prevailing application of this factor, a higher degree of creativity of the protected work militates against a finding of fair use.[194] Note that both rules apply even when the relatively noncreative work is likely to be used in many secondary works, as in the case of a map or other factual compilations useful for secondary uses.

More generally, several existing copyright doctrines greatly limit the efficacy of broad reproduction and derivative-works entitlements as restraints on over-entry. There exist a host of rules that often allow the creation of close market substitutes without infringing those entitlements, including: the idea–expression dichotomy that denies protection to general themes, abstract concepts, and generic plot lines or characters;[195] the *scène à faire* doctrine that allows the use of any expression considered to be a stock element within a genre;[196] the rule that copyright does not extend to any factual information;[197] and the denial of protection to any method or system of operation or any expression that merges with them.[198] The reuse

---

to some of the formulations in these cases, Patry explains that "regardless of the relative creativity of the work, the test for all works is substantial similarity." He further explains, however, that "[w]hile works having a 'thin' copyright due to a minimal amount of creative material may indeed only be infringed by close copying, this is because the majority of the work is unprotectible." 3 WILLIAM F. PATRY, PATRY ON COPYRIGHT, § 9:166 n.9 (2007).

193. 17 U.S.C. § 107(2) (2012).

194. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 586 (1994) ("This factor calls for recognition that some works are closer to the core of intended copyright protection than others, with the consequence that fair use is more difficult to establish when the former works are copied."); NIMMER ON COPYRIGHT, *supra* note 98, § 13.05[A][2][a] ("Under this factor, the more creative a work, the more protection it should be accorded from copying . . . ."); Pierre N. Leval, Commentary, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1117 (1990).

195. *See supra* note 92.

196. *See supra* note 93.

197. Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 547 (1985) ("[N]o author may copyright facts or ideas."); Financial Info., Inc. v. Moody's Investors Serv., Inc., 751 F.2d 501, 504 (2d Cir. 1984); Miller v. Universal City Studios, Inc., 650 F.2d 1365, 1368 (5th Cir. 1981); Hoehling v. Universal City Studios, Inc., 618 F.2d 972, 974 (2d Cir. 1980); 1 NIMMER ON COPYRIGHT, *supra* note 98, § 2.11[A].

198. *See* 17 U.S.C. § 102(b) (denying protection to any "procedure, process, system, [or] method of operation"); Baker v. Selden, 101 U.S. 99, 101–02 (1879) (clarifying that while a work about a book-keeping system can be copyrighted, the book-keeping system itself cannot); 1 NIMMER ON COPYRIGHT, *supra* note 98, § 2.18[A], at 2-198 (stating that copyright protection does not extend to cover the use of the copyrighted work). *See generally* Samuelson, *supra* note 99 (discussing the exclusion of processes from copyright law in 17 U.S.C. § 102(b)). For more on the merger doctrine, see BUC Int'l Corp. v. Int'l Yacht Council Ltd., 489 F.3d 1129, 1143 (11th Cir. 2007) and NIMMER ON COPYRIGHT, *supra* note 98, § 13.03[B][3]. Sometimes the merger doctrine can prevent rent dissipation by allowing later entrants to copy the merged expression and thus minimize the duplicative development cost incurred by them. Abramowicz, *Uneasy Case for Copyright*, *supra* note 1, at 1657–58. When the development cost of the merged elements accounts for only a portion of the work's total development cost, however, the doctrine is likely to facilitate rent dissipation. In such cases the merger doctrine, while preventing the waste of the duplicative development of the merged elements, facilitates the creation of close functional substitutes and the waste associated with developing the non-merged parts of such substitutes.

of preexisting expressive elements made available by these doctrines can give rise to new works that are by no means close substitutes for the originals from which the elements are derived. At the same time, however, reliance on these rules allows the creation of works that in terms of market demand are very close substitutes to many others. It is this set of rules that allows the production of yet another disaster movie that follows the well-known formula and feels very much like 500 others, the writing of a cookie-cutter detective novel, and the publication of a cookbook with a collection of recipes very similar to those of others (although with different background material and perhaps with the recipes somewhat differently arranged). Added to the ability of creating noninfringing, close substitutes is the incentive to do so, in the form of available copyright protection for the substitute. This is the result of a very low originality bar that requires no novelty,[199] and only a meager modicum of creativity.[200] Any of the above-mentioned works very likely would clear the originality bar and qualify for copyright protection, no matter how close they are as economic substitutes for other works in terms of satisfying overlapping consumer preferences.

Some aspects of the fair use doctrine that exempts certain otherwise infringing uses[201] do a somewhat better job in capturing close substitutes for existing works. Of particular importance is the rise to prominence in recent decades within the fair use analysis of the question of whether the secondary use is transformative.[202] The transformative character of the purportedly infringing use is examined under the "purpose and character of the use" factor of a fair use analysis,[203] and a strongly transformative use is

---

Consider for example a computer program. The merger doctrine may allow copying the portions of the code that are essential for certain functional aspects of the program. *See generally* Computer Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693 (2d Cir. 1992) (analyzing copyright protection of a computer program). Developing competing computer programs that, in part owing to this privilege, constitute close substitutes of the original may still involve substantial costs. The net effect in many cases would be facilitating rather than restraining rent dissipation. A similar logic applies to the other limiting subject-matter rules mentioned in the text: they prevent some waste by permitting copying of the unprotected element, but the substitution effect they enable is likely to fuel waste whenever other development costs are significant.

199. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345–46 (1991); Alfred Bell & Co. v. Catalda Fine Arts, Inc., 191 F.2d 99, 102 (2d Cir. 1951).

200. *See supra* note 181 and accompanying text.

201. *See* 17 U.S.C. § 107 (2012) (establishing the fair use doctrine).

202. *See, e.g.*, Campbell v. Acuff-Rose Music Inc., 510 U.S. 569, 578–79 (1994) (asking whether a use was transformative as part of determining fair use); Bill Graham Archives v. Dorling Kindersley Ltd., 448 F.3d 605, 608 (2d Cir. 2006) (analyzing whether or not a use was transformative); Kelly v. Arriba Soft Corp., 336 F.3d 811, 818 (9th Cir. 2003) (noting that the more transformative a use is, the less important other factors are in determining fair use); Suntrust Bank v. Houghton Mifflin Co., 268 F.3d 1257, 1269 (11th Cir. 2001) (noting the importance of transformative value in determining fair use); Fisher, *supra* note 9, at 1768–69 (discussing transformative fair use); Leval, *supra* note 194, at 1111 (asserting that justification of a fair use turns largely on whether the use is transformative).

203. 17 U.S.C. § 107(1).

given heavy weight,[204] potentially overshadowing all the other factors.[205] The Supreme Court's definition of this feature seems to track directly the issue of market substitutes and demand diversion. The court, following an 1841 decision by Justice Story, described a nontransformative use as one that "merely 'supersede[s] the objects' of the original creation."[206] By contrast, a work is transformative to the extent that it "adds something new, with a further purpose or different character, altering the first with new expression, meaning, or message."[207] Thus, the fair use doctrine with a robust transformative-use factor helps, to an extent, to orient the broad entitlements toward cases of duplicative and potentially wasteful substitutes.[208]

For several reasons, however, the extent of this effect should not be overstated. First, there are the general well-known shortcomings of fair use as a limitation on overbroad copyright entitlements. Fair use is treated by the courts as an affirmative defense, with the burden lying on defendants.[209] Additionally, the doctrine is notoriously open-ended and hard to predict, with its case-specific nature frequently requiring full, costly litigation.[210] This creates a chilling effect of uncertainty and too often, in the words of Lawrence Lessig, reserves fair use to the "presumably rich."[211] Second, courts vary greatly in their understanding of what constitutes a

---

204. *Campbell*, 510 U.S. at 579 ("[Transformative works] lie at the heart of the fair use doctrine's guarantee of breathing space within the confines of copyright.").

205. *See id.* ("[T]he more transformative the new work, the less will be the significance of other factors . . . .").

206. *Id.* (citing Folsom v. Marsh, 9 F. Cas. 342, 348 (C.C.D. Mass. 1841) (No. 4901)).

207. *Id.*

208. *See* Abramowicz, *Uneasy Case for Copyright*, *supra* note 1, at 1668 (describing the transformative use analysis as central to determining whether the works are unique enough to satisfy the tenants of rent dissipation theory). Similarly, the fourth fair use factor inquiry—about the effect of the use on the market for the original—helps orient fair use toward rent dissipation concerns. *See* 17 U.S.C. § 107(4). To the extent the copying work and others like it are likely to have a significant effect on the market for the original or for derivatives potentially licensed by the copyright owner, the higher the likelihood of substantial demand diversion. *See* Abramowicz, *Uneasy Case for Copyright*, *supra* note 1, at 1671.

209. *See Campbell*, 510 U.S. at 590 ("[F]air use is an affirmative defense . . . ."); *cf.* Glynn S. Lunney, Jr., *Fair Use and Market Failure:* Sony *Revisited*, 82 B.U. L. REV. 975, 989 (2002) (criticizing the courts' treatment of fair use as an affirmative defense); Ned Snow, *Proving Fair Use: Burden of Proof as Burden of Speech*, 31 CARDOZO L. REV. 1781, 1803 (2010) (same).

210. *See, e.g.*, Michael W. Carroll, *Fixing Fair Use*, 85 N.C. L. REV. 1087, 1106 (2007) (acknowledging that the test for fair use provides little predictability); Fisher, *supra* note 9, at 1693–94 (discussing situations in which the fair use doctrine is open-ended); Leval, *supra* note 194, at 1105–07 (opining that fair use decisions are guided by intuitive reactions to individual fact patterns rather than by a set of consistent principles); Jessica Litman, *Reforming Information Law in Copyright's Image*, 22 U. DAYTON L. REV. 587, 612–13 (1997) (describing the chilling effect of costly litigation on fair use); John Tehranian, *Whither Copyright? Transformative Use, Free Speech, and an Intermediate Liability Proposal*, 2005 BYU L. REV. 1201, 1215–16 (pointing out how the fair use doctrine has led to "[w]ildly disparate outcomes on similar fact patterns").

211. LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY 107 (2004).

transformative use and in their tolerance toward appropriative forms of expression. Some of the approaches circulating in the case law do not recognize as transformative secondary uses that clearly do not involve a high degree of substitution in terms of market demand.[212] Third, and most relevant here, in a large subset of cases the current meaning of "transformative" is misaligned with the way in which broad copyright is supposed to restrain demand diversion. Recall that the derivative-works entitlement ostensibly restrains duplicative over-entry in secondary markets, not by preventing close substitutes of the primary work, but rather by preventing many substitute variants on the secondary level (e.g., the question is not whether the computer game is a substitute of the movie but rather whether the movie is likely to result in many computer games each of which is a close substitute for the other).[213] Courts that conduct a fair use analysis, however, uniformly inquire not into whether a derivative work is transformative by comparison to other potential derivatives, but rather into whether it is transformative vis-à-vis the primary work.[214]

In sum, existing copyright doctrine does not orient the broad reproduction and derivative-works entitlements toward rent dissipation concerns. No mechanism exists for limiting the entitlements to cases where the magnitude of wasteful races is likely to be higher on the secondary level than on the primary one. And, more generally, the rules seem only weakly suitable for preventing close substitutes. Perhaps some of the relevant doctrinal features, such as the meaning of transformative uses for the purpose of fair use, could be recalibrated with this purpose in mind. Many others, however, such as the idea–expression dichotomy, are unlikely to change, both because they are deeply entrenched features of copyright law and because they serve other important purposes distinct from concerns with excessive entry.

b. Theoretical Concerns.—Quite apart from doctrinal difficulties, theoretical considerations raise serious doubts about the wisdom of broad copyright with respect to the secondary level of follow-on activity. The reasons lie, broadly speaking, in both incentive and information concerns with centralizing control over follow-on innovation in the hands of one or a few firms, especially in the context of expressive works.

A first important consideration is that a copyright owner's interest is not perfectly aligned with the social-welfare calculus. Economics textbooks usually present the first-best solution for over-entry in differentiated

212. *See, e.g.*, Castle Rock Entm't v. Carol Publ'g Grp. Inc., 150 F.3d 132, 142 (2d Cir. 1998) (finding the transformative nature of a book containing trivia questions and answers about the television show *Seinfeld* to be "slight to non-existent").

213. *See supra* notes 157–59 and accompanying text.

214. *See, e.g.*, *Campbell*, 510 U.S. at 578–79 (stating that the central purpose of a fair use investigation is to see if the work adds something new to the original creation).

product markets as a monopoly with a regulated price.[215] Recognizing that this will often be infeasible, the second-best solution typically put forth is governmental regulation of the number of entrants to the market.[216] Nowhere to be found is the solution represented by the derivative-works right, namely to delegate the power to regulate entry to a private firm (without regulating prices). A private firm takes into account only producer surplus (and the factors shaping its private costs and revenues). It has no incentive to consider other effects relevant to total social welfare, most importantly uncaptured consumer surplus.[217] As a result, a private firm with the power to regulate entry is likely to mandate under-entry from a social-welfare standpoint. Indeed, ignoring the possibility of non-identical products, a firm with an absolute control over-entry will usually dictate a monopoly irrespective of whether it operates within the relevant market or licenses to another the right to do so.[218] Thus, private power to regulate entry levels as the remedy for over-entry brings about the possible malady of under-entry.

To be sure, in many derivative markets the extreme scenario of a strict monopoly is unlikely. Broad though it may be, the derivative-work right will still fail to encompass a host of works that may serve as somewhat more remote substitutes for the relevant derivative work. The copyright owner in an action movie (say *Godzilla*) may decide to license the computer game rights to only one developer. The resultant computer game (say *The Adventures of Godzilla*) may be free from competition by other games very similar to it, but it will still face competition from many other action games not derivative of the movie (for example *King Kong*, *Smog*, and *Medusa*). To the extent that these nonderivative games are nontrivial substitutes, for the derivative some of the positive effects of differentiated-product competition will remain. To the extent that these nonderivative games, however, are substantially less perfect substitutes, these effects may be weak and therefore suboptimal by comparison to the optimal level of entry by closer substitutes—i.e., other games derivative of the movie. In short, even with competition from relatively remote substitutes, the derivative-works right as a private power to regulate entry may prevent over-entry only at the cost of some under-entry. It is unclear that we can say a priori which effect will be greater. Moreover, even in cases when the benefit of

215. *See, e.g.*, CARLTON & PERLOFF, *supra* note 14, at 211–13 ("[S]ociety's optimal solution is to subsidize one firm to produce all the output and to require that price be set equal to marginal cost.").

216. *See id.* at 213–14 (explaining that "[t]ypically, the government cannot regulate an industry so as to achieve a first-best solution," but "[b]y restricting entry, the government obtains the second-best optimum").

217. *See supra* note 147 and accompanying text.

218. *See* CARLTON & PERLOFF, *supra* note 14, at 77 (illustrating how a long-term absolute barrier to entry, like a patent, gives the patent owner a monopoly).

prevented over-entry outweighs the cost of resultant under-entry, it will be a diluted benefit.

Finally, consider a set of implications flowing from plenary coordination power over follow-on innovation, relating to the rate and quality of such innovation. Prospect theory's assumption that coordination power concentrated in the hands of a single IP-rights holder would optimize follow-on innovation has been subject to powerful critical pushback. Robert Merges and Richard Nelson famously argued that decentralized, competitive development, in which many independent parties work simultaneously along the same stretch of the innovation frontier—i.e., toward the same, or a small set of similar, innovation solution(s) in face of a commonly known problem—while somewhat wasteful, is nevertheless preferable to centralized coordination.[219] Although abstract economic theory predicts that a coordinating patentee who fully internalizes the value of future innovation will have optimal incentives to maximize this value, additional theoretical and empirical considerations, they argued, suggest otherwise.[220] A number of psychological tendencies and cognitive limitations of individuals and organizations make the centrally controlled innovation inferior: the tendency to "rest on [one's] laurels" and engage in "satisficing" behavior geared toward the acceptable rather than the optimal in the absence of an external threat;[221] the phenomenon of innovators focusing on directions that involve established capacities or familiarity;[222] and the general uncertainty and unpredictability typically involved with the process of innovation.[223] Moreover, given the high costs often associated with transacting over future innovation in information goods, licensing by the coordinating owner is unlikely to significantly alleviate these difficulties by mimicking the favorable conditions of open and diverse innovation.[224] The upshot? A preference for having many minds at work, over one or a few: "[M]any independent inventors will generate a much wider and diverse set of explorations than when the development is under the control of one

219. Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 877–78 (1990).

220. *Id.* at 872.

221. *Id.*

222. *Id.* at 873.

223. *Id.* at 873–74.

224. *Id.* at 874–75. Mark Lemley has since elaborated on the conditions that often impede harnessing the power of decentralized innovation through licensing. These include, among other things, the high costs of identifying implicated IP rights and their owners and of negotiating, dividing, and pricing rights under conditions of uncertainty and various bargaining failures characteristic of information goods. *See* Lemley, *supra* note 9, at 1052–64 (arguing that these obstacles can best be overcome by a scheme of divided entitlements similar to that which currently exists in patent law). *See also* Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698, 698–99 (1998) (describing the consequences of an anticommons, when multiple owners each have a right to exclude others from a scarce resource).

mind or organization. . . . The only way to find out what works . . . is to let a variety of minds try."[225]

Merges and Nelson's argument focused on the rate of innovation and relied on the assumption that "faster is better."[226] At least in the copyright context, this assumption must be qualified. Putting aside the theoretical possibility that an innovation can be introduced suboptimally early,[227] the more significant practical complication derives from the interaction between speed and quality. In the context of expressive works, rather than holding constant the output of an innovation and inquiring only about the speed of its introduction, often more realistic is the view that speed affects the content or quality of the innovation.[228] Consider the motion-picture adaptation of a novel, the sequel movie, or the movie-spin-off computer game that were rushed to market just in order to beat possible competitors in the race to capture an awaiting audience. These works are likely to be substantially different than what they would have been in the absence of the time pressures. At least in many cases, the quality and value of such hurried works will presumably be lower.[229] It is often better to be the first in the market with a third-rate sequel than second with a first-rate one.[230] In such cases faster is not clearly better, and will often result in lower net social value. Here, broad copyright control over secondary innovations may prevent waste of a different sort than discussed so far. Such a right allows the copyright owner (or her licensee) the breathing space required for optimizing the quality of secondary creations, without the fear of being preempted on the market and its resultant inefficient compromises of

225. Merges & Nelson, *supra* note 219, at 873.

226. *Id.* at 878.

227. Barzel, *supra* note 177, at 349. Another speed-related argument that cuts in the opposite direction in the patent context can be bracketed in regards to copyright. John Duffy has argued that one important advantage of a prospect patent that is granted early in the process of innovation is creating a race to patent. An earlier patent has the socially beneficial outcome of an earlier expiration of the patent and of the social costs associated with it. Duffy, *supra* note 181, at 446. This consideration is rarely significant for modern copyright, with its much longer duration than patents. *Compare* 17 U.S.C. § 302 (2012) (listing the term of copyright generally to be until the end of life plus 70 years), *with* 35 U.S.C. § 154 (2012) (creating a 20-year term for patents). Only a tiny fraction of the works protected by copyright retain commercial viability at the time of expiration, rendering the possibility of a somewhat earlier expiration date generated by a race insignificant in most cases.

228. *See* Landes & Posner, *supra* note 5, at 332 (discussing the effect of copyright on the incentives of "authors, publishers, and copiers" with regard to "the timing of various decisions").

229. Landes and Posner discuss the possible harmful effects of incentives to rush to the market on quality in a somewhat different context: a system that relies on first movers' advantages instead of copyright protection. Such incentives may result in "increased incentives to create faddish, ephemeral, and otherwise transitory works." *Id.*

230. To be sure, it may sometimes be the lack of an external threat by potential competitors over secondary innovations that adversely affects quality. Consider, for example, a decision to break up a movie into several installments that sacrifices the film's quality for the prospect of squeezing the relevant market, a strategy profiting from the insulation from any competing works.

quality.[231] This justification for broad copyright, however, is limited. At most it supports a reasonable period of time of exclusivity during which it is plausible to assume that a race to be first may adversely affect quality. Even if generously crafted, such a period would be only a fraction of the present copyright term (which currently extends to derivative works).

The effect of copyright on quality extends beyond the element of speed. Often the question is not just whether and when society will be provided with a particular secondary innovation, but also its quality as an expressive work. Not all screen adaptations or literary sequels are the same, and there is no guarantee that the "authorized" version will be the superior one (even when quality is measured in pure market-demand terms). Here, in contrast to the issue of speed, the argument from many minds applies even more forcefully. Given the realities of the creative process and the uncertainties involved with many expressive information goods, it seems plausible that open and decentralized models will often produce better quality than ones based on central control.[232] In exploring a possibility frontier, the value of many minds would seem to be greater the more variability there is regarding what counts as a successful exploration. And it seems reasonable to surmise that innovations involving high levels of expression and communication of meaning will tend to be more variable in this sense than innovations that primarily provide functional solutions to discrete problems.

Compare the existing motion picture adaptations based on the 1936 novel *Gone with the Wind*, which is still under (broad) copyright protection,[233] to those based on another classic which has long been in the public domain, *Pride and Prejudice*. There are two such adaptations of *Gone with the Wind*, both of which were authorized by the copyright owners: the classic, hugely successful 1939 film and a 1994 mini-series

---

231. *See* Abramowicz, *Copyright's Derivative Right*, *supra* note 1, at 319–20.

232. *See* Tim Wu, Essay, *Intellectual Property, Innovation, and Decentralized Decisions*, 92 VA. L. REV. 123, 126 (2006). Discussing different types of decision-making structures, Professor Wu observes:

> "[T]he economic literature strongly favors decentralized decision structures in economic systems, based on the observation that free-market economies perform better than planned, centralized economies. . . . The danger [of broad intellectual property rights] is that centralization of investment decisionmaking may block the best or most innovative ideas from coming to market.").

Id. The foundational work for this line of argument is, of course, F.A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519 (1945).

233. *Gone with the Wind* was originally registered in 1936. 33 LIBRARY OF CONGRESS, COPYRIGHT OFFICE, CATALOG OF COPYRIGHT ENTRIES pt. 1, at 1957 (New Series 1936). The copyright was then renewed in 1963. 17 LIBRARY OF CONGRESS, COPYRIGHT OFFICE, CATALOG OF COPYRIGHT ENTRIES pt. 1, at 2209 (3d Series 1963). Under § 304, the term of a copyright under renewal in 1978 was limited to 95 years from the date of publication; thus, *Gone with the Wind*'s copyright extends until 2031. *See* 17 U.S.C. § 304 (2012).

Scarlett based on the authorized sequel novel of the same title.[234] This paucity is particularly conspicuous when contrasted with the abundance of *Pride and Prejudice* adaptations. A partial list of such motion-picture adaptations includes: a 1940 Hollywood film; two (very different) BBC television miniseries versions; a more popular film version from 2005; *Bride and Prejudice*, which is a Bollywood-inspired adaptation; the *Bridget Jones* movies, a modern version of the story loosely based on the original; the miniseries *Lost in Austen* that ventures into the realm of the fantastic by telling the story of a young woman who, through a portal in her bathroom, swaps places with Elizabeth Bennett; and a 2008 Israeli television series that locates the story in modern-day Israel.[235] The point is neither that all of these numerous variants are of exceptional quality nor that there is no duplication among them. It is, rather, that allowing this kind of open and uncontrolled experimentation is more likely to produce the most qualitative value, both in the sense of particular versions that exhibit high creativity and innovation and in the sense of maximizing the aggregate value measured in terms of appeal to a variety of consumer tastes and preferences.[236] As for the duplicative waste necessarily involved with such a large variety, it is by no means clear that in most of these instances it exceeds that which is generated by repetitive, formulaic, and imitative creation of the kind which is squarely allowed by copyright law under the standard rules described above.[237] Is it really the case, for example, that many of the *Pride and Prejudice* versions are more duplicative of each other than two different romantic novels that follow standard formulas, themes, and conventions? In short, when it comes to creativity, notwithstanding a degree of wasteful duplication necessarily associated with uncoordinated secondary innovation, the notion that the best way is "to let a variety of minds try"[238] rings truer than ever.

234. GONE WITH THE WIND (Selznick International Pictures & Metro-Goldwyn-Mayer 1939); *Scarlett* (TF1 et al. 1994).

235. PRIDE AND PREJUDICE (Loew's 1940); *Pride and Prejudice* (British Broadcasting Corp. & Chestermead 1995); *Pride and Prejudice* (British Broadcasting Corp. & Australian Broadcasting Corp. 1980); PRIDE & PREJUDICE (Focus Features 2005); BRIDE & PREJUDICE (Pathé Pictures International 2004); BRIDGET JONES'S DIARY (Miramax Films 2001); *Lost in Austen* (Mammoth Screen 2008); *What a Bachelor Needs* (HOT 2009). *See generally* DEBORAH CARTMELL, SCREEN ADAPTATIONS: JANE AUSTEN'S PRIDE AND PREJUDICE: THE RELATIONSHIP BETWEEN TEXT AND FILM (2010).

236. *See* Wu, *supra* note 232, at 140 ("It is, for example, rare to see multiple film versions of a given copyrighted novel, even though one might expect that decentralized competition among films might serve the public interest.").

237. *See supra* notes 195–200 and accompanying text.

238. Merges & Nelson, *supra* note 219, at 873.

C. *Taking Stock*

Where does all this leave us? Properly understood, product differentiation theory is best understood not as a substitute for the incentive–access framework, but as a valuable supplement that needs to be integrated into a more comprehensive framework that identifies a series of relevant parameters of inframarginal and supramarginal costs and benefits of IP protection.

When so integrated, it becomes clear that product differentiation does not, contrary to some receptions, offer any sweeping conclusions on either the descriptive or the prescriptive level. Significantly, some of the general propositions for which the theory is increasingly cited in intellectual property scholarship—such as the claim that copyright may work without conferring market power[239]—are either incorrect or misleading and should be laid to rest. Even in the presence of fierce competition by differentiated products, copyrights (or patents) cannot provide incentive without deadweight loss. Firms in monopolistic competition, if they are to recover their development costs, will tend to charge some price (or schedule of prices) above marginal cost, resulting in deadweight loss. Similarly, the notion that we can promote simultaneously *both* access and incentives, by costlessly ratcheting up copyright protection, is a mirage.[240] Under conditions of differentiated competition, strengthening copyright has an indeterminate effect on overall deadweight loss (i.e., access) and it always results in the additional costs of accumulating duplicative development costs incurred by new entrants.

More generally, the theory does not provide strong substantive support for a uniform set of doctrinal recommendations in favor of strong—inclusive, intense, and narrow—copyright protection. Such protection produces complex effects in different markets on incentives to create, deadweight loss, duplicative development costs, and satisfaction of consumer demand through increased variety. As the baseline of copyright protection increases, each additional increment of protection is less likely to result in net benefit since, as in dense product spaces, new variants of inframarginal innovations satisfy less new demand, duplicative costs continue to accumulate at a steady rate, and the net value of new supramarginal innovations is likely to drop.

Product differentiation also fails to supply a firm justification for broad copyright as an active restraint on wasteful demand diversion in primary or secondary markets. A host of related effects—including a possible wasteful race for the primary innovation, the prospect of under-entry by close substitutes for the secondary innovation, and influences on the speed and

239. *See supra* note 15 and accompanying text.
240. *See supra* notes 82–85 and accompanying text.

quality of innovation—may very well outweigh the efficiency gains of the centralized coordination power created by such broad copyright.

III. Some Modest Proposals

When product differentiation theory is properly understood within the supramarginal–inframarginal framework, we can identify and diagnose more clearly the ways that existing applications of the theory to copyright law falter. Unilateral focus on the benefits of entry encouraged by copyright protection misses the facts that there are no free lunches and that the different effects of legal levers on markets for expressive works are always interdependent. Copyright's supramarginal benefits are always bought with inframarginal costs, under both the traditional and the product differentiation frameworks. There is no escaping this trade-off. The difference between the two theoretical perspectives lies in the identification of somewhat distinct supramarginal benefits and inframarginal costs.

Similarly, when the application of product differentiation theory to expressive works is fully understood, the idea of using copyright's exclusive entitlements as a means for dampening rent dissipation appears patently misguided. The unique feature of IP rights compared to the standard dynamics of product differentiation is that IP rights are the legal lever that generates both the need of entrants to incur the wasteful fixed cost and their incentive to do so. In a standard product differentiation scenario, it is the availability of rents in the market that attracts the entry, which in turn inevitably requires duplicative fixed costs of entry.[241] The only way to restrict entry, if deemed wasteful, is a direct legal constraint on it (perhaps accompanied by a regulated price). In the copyright context, it is the legal right to exclude others that generates the rents that attract entry. And it is also the source of the need to incur duplicative fixed cost: since we are dealing with a nonrivalrous resource, we could have entry and its price benefits without the need for entrants to reinvest the fixed cost. To an extent, we are willing to suffer the cost of wasteful entry as an unfortunate side effect of exclusion needed for receiving the supramarginal benefits of copyright. But using the costly and unnecessary technique of legal exclusion as a means for reducing wasteful entry, beyond what is necessary for capturing new innovation benefits, seems perverse. When the very cause for duplicative cost entry is used as a means for its reduction, it is a small wonder that the exercise has the quality of squeezing a balloon: one depresses one form of rent dissipation only to watch another swell up as a result.

The value of product differentiation theory, then, is in highlighting some effects of copyright that are neglected by the traditional framework:

241. *See supra* section I(B)(2).

rent dissipation on the side of inframarginal cost (perhaps overshadowing in some cases the salience of deadweight loss as the main cost), and that the benefit of supramarginal innovation is often diluted due to the fact that many new works are substitutes that only partly serve new demand in already existing markets.

Assuming that product differentiation theory captures the dynamics of many markets for expressive works better than the traditional monopoly model, what implications follow for justifying or reforming copyright law? One implication, briefly explored below, already follows from the foregoing discussion: product differentiation theory offers new reasons for the current widespread skepticism of the existing, broad derivative-works entitlement and therefore counsels for the abolition or dramatic roll back of this entitlement.

Reining in the derivative-work entitlement, however, still leaves mostly unresolved the problem of rent dissipation highlighted by product differentiation theory. Assuming, again, that that model is correct in underlining the seriousness of this concern, what might be more effective ways to adjust copyright law to ameliorate the problem?

We discuss three main further possibilities: beefing up the originality requirement to deny protection to nonnovel works; trimming the level of copyright protection afforded derivative works; and an overall decrease in the strength of copyright protection. These are different institutional means for pursuing the same underlying aim: reducing rent dissipation by removing copyright-generated rents that lure the entrance of duplicative substitutes. As explained, reducing rent dissipation by removing its cause in the form of a too-strong copyright exclusionary power seems rather more plausible than pursuing the same goal by amplifying the effects of this cause. Each of these alternatives suffers from some disadvantages and faces serious difficulties. Each, however, offers a real prospect of dealing effectively with the problem of rent dissipation that, from the perspective of product differentiation, is one of the main sources of the social cost created by copyright.

A. Reining in the Derivative-Works Right

The existence and proper scope of the derivative-works right is the subject of ongoing scholarly debate. While some commentators support a broad entitlement,[242] the trend of recent scholarship has been toward

242. *See* Zechariah Chafee, Jr., *Reflections on the Law of Copyright: I*, 45 COLUM. L. REV. 503, 505 (1945) ("The essential principle is the author's right to control all the channels through which his work or any fragments of his work reach the market."); Paul Goldstein, *Derivative Rights and Derivative Works in Copyright*, 30 J. COPYRIGHT SOC'Y U.S.A. 209, 252 (1983) (arguing for a broad derivative-works entitlement on the basis of incentivization).

advocating its abolition or at least a significant narrowing of its scope.[243] Under traditional efficiency analysis, this skepticism stems from an assessment of the relatively low incentive-to-cost ratio held out by the entitlement.[244] Exclusive control over derivative markets, while imposing a substantial cost on secondary innovation, is typically ineffective in creating incentives for the primary work.[245] In the case of works highly successful in their primary market, the additional value internalized by the copyright owner is likely to be unnecessary to recoup investment; whereas for less successful primary works, their typically smaller earning potential in derivative markets means the entitlement is unlikely to generate substantial additional profits.[246] Either way, the incentive "bang" earned for the access "buck" seems small. Continued debate within the traditional incentive–access frame revolves, then, on how typical such profitability conditions are, and on related questions,[247] including the extent to which the prospect of monetary gains plays a significant role in incentivizing creation in many of the relevant contexts.[248]

---

243. *See, e.g.*, Christina Bohannan, *Taming the Derivative Works Right: A Modest Proposal for Reducing Overbreadth and Vagueness in Copyright*, 12 VAND. J. ENT. & TECH. L. 669, 692–94 (2010) (comparing constitutional and interpretative techniques to limit derivative-works protection); Lunney, *supra* note 5, at 650–53 (proposing a narrower standard for derivative-works rights); Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 378–79 (1996) (advocating for narrower but not completely eliminated protections for derivative works); Christopher M. Newman, *Transformation in Property and Copyright*, 56 VILL. L. REV. 251, 254–55 (2011) (arguing for a more consistent reading of copyright to place objective limits on the bounds of the derivative-works right); Tyler T. Ochoa, *Copyright, Derivative Works and Fixation: Is* Galoob *a* Mirage*, or Does the* Form(Gen) *of the Alleged Derivative Work Matter?*, 20 SANTA CLARA COMPUTER & HIGH TECH. L.J. 991, 1020 (2004) (proposing an alternative interpretation of the right to prepare derivative works that narrows protections); Pamela Samuelson, *The Quest for a Sound Conception of Copyright's Derivative Work Right*, 101 GEO. L.J. 1505, 1511 (2013) (proposing that derivative-works rights are narrower in actuality than other commentators fear and advocating continued constraint); Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1215–17 (1996) (finding arguments for exclusive rights in derivative works unpersuasive); Naomi Abe Voegtli, *Rethinking Derivative Rights*, 63 BROOK. L. REV. 1213, 1268 (1997) (proposing narrower rights for derivative works to incentivize engagement in technological and postmodern art activities).

244. *See* LANDES & POSNER, *supra* note 9, at 109–10 ("The case for giving the owner of a copyrighted work control over derivative works is a subtle [and speculative] one."); Sterk, *supra* note 243, at 1215–16 (explaining the limited situations in which the prospect of profits from derivative works is necessary to incentivize production of original works).

245. *See* Sterk, *supra* note 243, at 1216 (questioning the need, for instance, of giving the author of a book the exclusive right to prepare a movie version).

246. *See id.* at 1215–16 (suggesting the existence of only a limited type of work, such as an extraordinarily high-budget movie, whose derivative returns would justify the cost of production when original returns would not); Voegtli, *supra* note 243, at 1241–42 (arguing that an author who earns millions of dollars per book "does not need [derivative] income . . . to cover her original cost of production").

247. *See* Samuelson, *supra* note 243, at 1527–33 (discussing three justifications for granting derivative work rights).

248. *Id.* at 1530. For general skepticism about the role of monetary gain as an incentive for creation, see, e.g., Julie E. Cohen, *Creativity and Culture in Copyright Theory*, 40 U.C. DAVIS L. REV. 1151, 1152 (2007) ("[T]heorists offer no particular reason to think that marketable

Product differentiation theory reframes the debate. The focus here shifts away from the traditional trade-off between incenting new supramarginal primary works and restricting access in secondary markets for existing, or inframarginal, ones. Instead, the main factors now driving the analysis are the magnitude of wasteful rent dissipation in both primary and secondary markets and the effects of centralized control on the nature and quality of secondary innovation. As we have seen, however, this shift in focus does not quell skepticism regarding the desirability of a broad derivative-works entitlement.[249] In particular, there is little reason to believe that any rent dissipation that the entitlement helps dampen at the secondary level will be greater than what it likely fuels at the primary level. When this is coupled with the troubling effects that centralizing control over secondary markets may have on the rate, direction, and character of cumulative innovation in the context of expressive creativity, product differentiation theory points in the same direction as traditional incentive–access analysis, albeit on distinct grounds, suggesting that on balance the entitlement does more harm than good.

The doctrinal upshot of this analysis is either complete abolition or a significant scaling back of the derivative-works right in its current broad form. Abolition would be relatively straightforward: simply removing this stick from the current bundle provided by copyright protection. Scaling back could take several forms. The most modest would be to reverse the current judicial tendency of construing the entitlement broadly, by limiting its scope to the precise categories of derivative works enumerated in the statute[250] and only very close analogues.[251] A more dramatic scaling back would be to reserve the entitlement for only those exceptional categories of derivatives where a high likelihood exists that, on average, the supra-marginal incentive generated by control of secondary markets is both necessary and effective.[252] There is little reason to believe that such

---

byproducts are . . . an effective stimulus for creativity . . . ."); Lydia Pallas Loren, *The Pope's Copyright? Aligning Incentives with Reality by Using Creative Motivation to Shape Copyright Protection*, 69 LA. L. REV. 1, 8 (2008) (noting that there appears to be little risk, without copyright protection, of underproduction and underdissemination of papal texts); Rebecca Tushnet, *Economies of Desire: Fair Use and Marketplace Assumptions*, 51 WM. & MARY L. REV. 513, 526 (2009) (discussing that many creators experience creativity as an "automatic function" that brings them pleasure); Diane Leenheer Zimmerman, *Copyrights as Incentives: Did We Just Imagine That?*, 12 THEORETICAL INQUIRIES L. 29, 30–31 (2011) (doubting that authors would otherwise lack motivation to create without copyright's reservation of future profits from their work).

249. *See supra* section II(B)(3).

250. The categories explicitly mentioned in the statutory definition of derivative works are: translation, musical arrangement, dramatization, fictionalization, motion-picture version, sound recording, art reproduction, abridgment, and condensation. 17 U.S.C. § 101 (2012).

251. *See* Samuelson, *supra* note 243, at 1523–25 (discussing the final clause of the derivative-work definition, which can be read to cover derivatives analogous to the ones listed in the statute).

252. *See* William W. Fisher III, *The Implications for Law of User Innovation*, 94 MINN. L. REV. 1417, 1448 (2010) (considering whether copyright holders would probably not face reduced incentives if "user innovation[s]," such as parody movies and song remixes, were exempted from

categories would strongly overlap with the existing statutory list. A different limitation, one that could be combined with either the existing or a narrowed scope of covered categories, would be to reduce the entitlement's term to an extremely short duration.[253] The main advantage of this approach is that it would restrict centralized control over secondary expressive works to the period where such control is most likely to be net beneficial, namely when it would prevent the prospect of a low-quality secondary work being rushed to market just to beat out the competition. After the period when this danger is greatest has passed (say, two to five years),[254] the terrain of secondary innovation would open up, reaping the benefits of "many minds" having a go.

An essential part of any effort to rein in the scope of a derivative-works right is clearly defining the line dividing such works from those infringing the reproduction right. The status of this border, at present, remains an esoteric mystery. This is due primarily to the fact that the reproduction right, as currently interpreted, may cover quite remote degrees of similarity under a very broad substantial similarity test. Is a television commercial incorporating a short fragment of text, similar to that appearing in a graphic work, a reproduction, or a derivative work?[255] Nobody knows.[256] And, more significantly, nobody cares, which is why the distinction has remained an elusive one. Except in rare cases, nothing turns on it: whether we call a secondary work a reproduction or a derivative, either way it falls under the copyright owner's exclusive entitlements.[257] However, in a regime where the derivative-works entitlement is reined in, the reproduction right must accordingly be cut back to size and the borderline between the two clearly demarcated and vigilantly policed. Otherwise, a de facto, broad derivative-works entitlement will return

---

derivative coverage); Sterk, *supra* note 243, at 1226 (suggesting that copyright protection for architects would clearly fall out of such a category of protection).

253. *See* Samuelson, *supra* note 243, at 1530 (arguing that some social benefits are likely to flow from granting authors power to control derivative markets "at least for some time").

254. *See* Abramowicz, *Copyright's Derivative Right*, *supra* note 1, at 319–20 (defending the derivative right as "a tool that allows authors to take their time"); Samuelson, *supra* note 243, at 1530–31 (similarly arguing that authors should have time to plan derivatives).

255. *See* Andreas v. Volkswagen of Am., Inc., 336 F.3d 789, 791 (8th Cir. 2003) (reinstating a jury award for a graphic artist claiming infringement by voice-over in a television commercial).

256. *See* 2 NIMMER ON COPYRIGHT, *supra* note 98, at § 8.09[A], at 8-142.8(13) ("[I]f the right to make derivative works . . . has been infringed, then there is necessarily also an infringement of either the reproduction or performance rights."); Abramowicz, *Copyright's Derivative Right*, *supra* note 1, at 334 ("[T]he tests for violation of the derivative right and violation of the reproduction right are themselves almost redundant."). *But see* Daniel Gervais, *The Derivative Right, or Why Copyright Law Protects Foxes Better than Hedgehogs*, 15 VAND. J. ENT. & TECH. L. 785, 839–48 (2013) (attempting to define the normative distinction between the reproduction and derivative-works entitlement).

257. Jed Rubenfeld, *The Freedom of Imagination: Copyright's Constitutionality*, 112 YALE L.J. 1, 50 (2002) ("Contemporary copyright jurisprudence rarely distinguishes between reproductions and infringing derivative works.").

through the back door of reproduction.[258] The history of copyright teaches us that such a restrictive definitional approach to reproduction is hardly unworkable: indeed, historically the right to make copies was much narrower, and more clearly delineated, than it is today.[259] To be sure, fuzzy borderlines will always exist in this area; the main question is where to draw them.

B. Originality as Novelty

Rolling back derivative-works protection, while curbing the likely net harmful effect of the entitlement in its current form, will do little to ameliorate the central problem of rent dissipation highlighted by product differentiation theory: namely, the basic concern that many of the expressive works incented by increased copyright protection will be partial substitutes for existing works, lured in considerable part by diverting existing demand rather than creating new value. What can be done to ameliorate this concern?

The most direct means for curbing rent dissipation is to modify the originality criterion that serves as a threshold condition for acquiring copyright protection. That creators must satisfy *some* originality requirement is accepted today as a fundamental feature of copyright;[260] yet at the same time, there is also universal agreement in the case law that the requisite level of originality is extremely low. To qualify for copyright, a work needs merely to be independently created rather than copied, and to exhibit a modicum of creativity,[261] one small enough to be present, as the Supreme Court has observed, in the vast majority of cases.[262] Recent scholarship, however, has begun to question this conventional wisdom and proposed various schemes for beefing up originality's requirements.[263]

---

258. This is exactly what happened historically prior to the 1976 Copyright Act. Over a period of 150 years, the originally limited right of reproduction was gradually expanded thereby giving rise to a de facto, broad derivative-works entitlement. *See* Oren Bracha, *The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright*, 118 YALE L. J. 186, 224–33 (2008); Rubenfeld, *supra* note 257, at 50–52.

259. Bracha, *supra* note 258, at 224–25.

260. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) ("The *sine qua non* of copyright is originality.").

261. *Id.*

262. *Id.* ("The vast majority of works make the grade quite easily, as they possess some creative spark . . . .").

263. *See, e.g.*, Erlend Lavik & Stef van Gompel, *On the Prospects of Raising the Originality Requirement in Copyright Law: Perspectives from the Humanities*, 60 J. COPYRIGHT SOC'Y USA 387, 442 (2013) (opining that orignality should be assessed based on the specialized standards for certain subcategories of copywriteable works, such as novels or magazines); Joseph Scott Miller, *Hoisting Originality*, 31 CARDOZO L. REV. 451, 458 (2009) (urging that copyright have a creativity threshold similar to patent law); Gideon Parchomovsky & Alex Stein, *Originality*, 95 VA. L. REV. 1505, 1507 (2009) (proposing "a workable copyright system that calibrates authors' protection and liability to the originality level of their works").

Product differentiation theory sheds new light on both the existing doctrine and the revisionary scholarship.

As mentioned, that originality does not require novelty, but only independent creation, is a deeply entrenched rule of copyright.[264] In the famous words of Judge Learned Hand: "[I]f by some magic a man who had never known it were to compose anew Keats's Ode on a Grecian Urn, he would be an 'author,' and, if he copyrighted it, others might not copy that poem . . . ."[265] Moreover, even a work that draws heavily on a preexisting work needs only to satisfy a very meager "distinguishable variation[]" test to be deemed independently created.[266] Revisionary views of originality, meanwhile, tend to emphasize the need for greater creativity or merit, rather than novelty.

Product differentiation theory, however, turns the spotlight exactly on a substantial novelty requirement as a means for reducing rent dissipation. The most direct way of reducing wasteful entry by new works that primarily divert demand from works already supplied is to remove the engine that propels this dynamic, meaning, the copyright protection that enables the capture of such rents and thereby attracts duplicative entry. Moreover, achieving this result through a novelty requirement has the virtue of sharpening what may otherwise be the blunt tool of simply reducing overall protection by specifically targeting those cases where rent dissipation is a significant concern. The lure of copyright rents is denied only to those works that are close substitutes for existing ones, where the supramarginal benefits of entry are particularly small. As a result, the works that are attracted by copyright-based revenues will be those that exhibit a smaller degree of substitution and therefore higher levels of net supramarginal benefit. A novelty requirement, in other words, ensures that the inframarginal cost generated by a given level of copyright protection is exchanged for a substantial amount of true supramarginal benefit from the satisfaction of new demand.

Importantly, this theoretical justification also supplies a specific meaning for novelty in this context. Novelty here does not simply mean a low degree of expressive similarity to existing works. It means, rather, a small degree of market substitution in terms of demand satisfaction. Similarity of concrete expression does not always overlap with substitution. A modern remake of a twenty-year-old film is probably more similar to the existing predecessor work than a banal disaster movie that closely follows a worn-out formula without exhibiting a high degree of concrete expressive

---

264. *See Feist*, 499 U.S. at 345 ("Original, as the term is used in copyright, means only that the work was independently created by the author . . . ."); 1 NIMMER ON COPYRIGHT, *supra* note 98, § 2.01[A], at 2-7 ("[I]t is now clearly established . . . that the originality necessary to support a copyright merely calls for independent creation, not novelty.").

265. Sheldon v. Metro–Goldwyn Pictures Corp., 81 F.2d 49, 54 (2d Cir. 1936).

266. Alfred Bell & Co. v. Catalda Fine Arts, Inc., 191 F.2d 99, 105 (2d Cir. 1951).

similarity to any particular other variants in the genre. Yet it is the latter that is a closer substitute for existing works, representing higher levels of wasteful demand diversion. In short, the guiding light of novelty should be the functional element of market substitution, not expressive similarity detached from its relationship to consumer demand.

This proposal faces several possible objections. First, having any meaningful bite to originality runs against the dominant grain of American copyright jurisprudence over the last century, with its deep-seated resistance to a high originality bar. The classic statement of this resistance is, of course, Justice Holmes's warning in *Bleistein v. Donaldson Lithographing Co.*[267]: "It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations, outside of the narrowest and most obvious limits."[268] Underlying this position are two intertwined elements. The first is an assessment of institutional competence, that judges or juries are extremely ill equipped to evaluate the aesthetic merit or social worth of expressive works, an evaluation that is highly uncertain, prone to dangers of paternalism or elitism, and in any case perhaps inherently subjective.[269] The second is the conviction that there exists a far superior mechanism for channeling creative efforts in socially valuable directions, rendering unnecessary any dubious sorting by courts: the market or box office, which ensures that a copyright owner's compensation is proportional to the consumer demand for her work (said demand being our best measure of its social value).[270] It is precisely this alternative mechanism, however, that product differentiation theory calls into question in an important subset of cases. High-rent-dissipation cases are ones where we cannot simply rely on the box office, as market sales significantly misalign the private interests of entrant firms competing to divert rents from that of net social benefit.

Rent dissipation, then, robs the second element of resistance to originality of much of its force. To be sure, the first element of institutional competence does remain. However, even here, the problem is no longer as acute as under traditional analysis. Under the proposed originality bar, courts would have to evaluate not the work's social value or artistic merit,

---

267. 188 U.S. 239 (1903).

268. *Id.* at 251.

269. Amy B. Cohen, *Copyright Law and the Myth of Objectivity: The Idea-Expression Dichotomy and the Inevitability of Artistic Value Judgments*, 66 IND. L.J. 175, 194 (1990) ("[G]rowing twentieth-century skepticism regarding the existence of any objective or neutral definition of artistic value helps to explain why Congress and the courts are reluctant to allow copyright determinations to be made on the basis of a judge's view of a work's artistic value.").

270. *See* Henderson v. Tompkins, 60 F. 758, 764 (C.C.D. Mass. 1894) ("[R]eception by the public may be the only test on the question of insignificance or worthlessness under the copyright statutes."); Bracha, *supra* note 258, at 218–20 (discussing the historical perspective on how copyright doctrine came to equate social and artistic value with market value in the context of the originality requirement).

but rather its degree of novelty, as measured in terms of market substitution. This is significantly less prone to the dangers of subjectivism, elitism, or paternalism. That is not to say that novelty will be typically easy to assess. The degree of market substitution among expressive works may be an elusive question, requiring much information and subtle judgment. As explained, market substitution does not completely overlap with expressive similarity and it may depend on other ambiguous factors such as the shelf life of works and segmentation of the market. It does not follow, however, that the task is infeasible. Novelty judgments by courts are a staple part of patent law,[271] and whether technological innovation is fundamentally different from expressive works in this respect is debatable.[272] And related judgments are frequently required to be made by courts in the course of applying other doctrines of copyright. As part of the analysis of fair use, courts routinely evaluate whether allegedly infringing works are transformative or "mere substitutes" for the plaintiff's work.[273] In applying the substantial-similarity test for infringement, courts need to resolve such questions as whether the similarity of the character in *The Greatest American Hero* simply invokes that of *Superman* or makes the former a close substitute of the latter for the relevant target audience.[274] These are market-substitution inquiries, albeit ones conducted in a more focused way where the frame of comparison is one other particular work rather than the entire universe of potential close substitutes in the market.

A second problem facing the proposed novelty requirement is the high cost to creators of having to engage in preemption checks. This difficulty, often advanced to explain or justify why independent creation is not copyright infringement, is equally applicable here.[275] How is a prospective creator to know whether her planned work will meet the novelty requirement? The universe of expressive works is vast, and comprehensively scanning it to ascertain a future project's novelty may be prohibitively expensive.[276] The difficulty is exacerbated by the background rules of copyright. In contrast to patent's examination system, under the current copyright regime neither registration nor deposit is a precondition for copyright protection, which means that there is no centralized com-

271. *See* 35 U.S.C. § 102 (2006).

272. Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441, 1454–55 (2010) (critically examining the assumption behind the argument that technological and expressive innovation are fundamentally different in regard to novelty).

273. *See supra* notes 194–200 and accompanying text.

274. *See* Warner Bros. v. Am. Broad. Cos., 720 F.2d 231, 241–42 (2d Cir. 1983) (considering both the visual resemblance and totality of attributes in determining whether *The Greatest American Hero* infringed upon *Superman*).

275. *See* Landes and Posner, *supra* note 5, at 345–46.

276. Unlike in the context of preemption checks for purposes of avoiding infringement, the universe of works relevant for novelty searches is not limited to works under copyright protection but extends to any potential substitute, including public domain works.

prehensive database of copyright "prior art" that could be consulted to establish novelty.[277] Furthermore, unlike patents, copyright does not involve a system of claiming that forces owners of preexisting works to produce a textual statement of the intellectual work's "metes and bounds."[278] While not resolving all the difficulties associated with novelty inquiries, the ability to compare textual elements at least contains the process and gives it some analytic structure. None of this exists in copyright law. These preemption-check difficulties also bear on the first difficulty, of courts' institutional capacity: what is true of creators *ex ante* is true of courts *ex post*. A closer look shows, however, that these difficulties, while substantial, may not be as fatal as appears on first blush. As long as the purpose of the novelty bar—preventing high degrees of duplicative substitutes—is firmly kept in mind, the "prior art" burdens it imposes become correspondingly more delimited. What is required here is not absolute novelty as against the entire universe of existing expressive works; rather it is enough to meet the bar to deny protection only to those works that largely divert demand that is already satisfied by existing works. For this purpose, it is enough to take into account as "prior art" only extant works that currently satisfy some market demand, that is, works that enjoy a nontrivial level of public visibility or commercial success. It is only a short step from this restriction to taking into account only registered works. Not all registered works are highly visible or successful. As a result of the advantages of optional registration,[279] however, a large number of commercially exploited works are registered.[280] Thus, doubly limiting copyright's "prior art" to registered works that are commercially exploited is consistent with the novelty bar's underlying rationale. While such

277. *See* 17 U.S.C. §§ 407(a)–408(a) (allowing, but not requiring as conditions of copyright protection, the registration and deposit of copyrighted works).

278. Clarisa Long argues that this distinction is inherent in the different subject matter of the two areas. According to Long, while the utilitarian subject matter of patent is amenable to "[r]eductionism," it "is harder to define the creative expression contained in most copyrighted goods." Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 488 (2004). Paul Goldstein argues in a similar vein that expressive subject matter, by contrast to a utilitarian one, is not amenable to efficient indexing and classification. *See* 1 PAUL GOLDSTEIN, COPYRIGHT: PRINCIPLES, LAW AND PRACTICES § 2.2.1 n.8 (1989) (arguing that unlike patentable subject matter, "literary, musical, and artistic expression cannot be effectively classified to enable authors, composers and artists to examine all pertinent prior works to determine whether their contributions substantially differ from these prior works"). For a critical treatment of this line of argument see Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 781–94 (2009).

279. Raymond Shih Ray Ku et al., *Does Copyright Law Promote Creativity? An Empirical Analysis of Copyright's Bounty*, 62 VAND. L. REV. 1669, 1689–90 (2009) (discussing the advantages of registration).

280. Christopher Sprigman, *Reform(aliz)ing Copyright*, 57 STAN. L. REV. 485, 496 & fig.1 (2004) (discussing the connection between copyright registration and a "realistic prospect of commercial return" from the work).

limitation will not eliminate the difficulties associated with *ex ante* or *ex post* novelty calls, it is likely to reduce them significantly.

A final objection derives from any costs of increased uncertainty as a result of errors made in the course of handling the preceding two challenges in implementing a novelty requirement. By denying copyright to a subset of potential expressive works, a novelty bar will of course reduce the number of works created. To the extent that the works not created are those that fail to satisfy the requirement as properly construed, foregoing them is of course the precise outcome desired, reflecting the basic policy judgment embodied in the bar that the net social value of such works is small or even negative because of their modest added value relative to the duplicative costs of their development. However, the suboptimal character of preemption checks by innovators and novelty decisions by courts means some works that should meet the requirement will not and vice versa, resulting in a zone of *ex ante* uncertainty. Thus, to the extent that creators exhibit some degree of risk aversion, there will be some chilling effect on net beneficial, supramarginal innovation.

C. Trimmed Copyright for Derivatives

A third alternative means for targeting rent dissipation is to reduce the strength of copyright protection afforded to derivative works. This is a mirror image of using a strengthened derivative-works exclusive entitlement for the same purpose. The underlying assumption of both proposals is that markets in derivative works are characterized by a high degree of substitution between variants. Sometimes the substitutes are the primary work and its derivatives, but more often the concern is that numerous duplicative derivatives will be created in the wake of a successful primary work. The proposed rule would dampen the stream of duplicative derivatives by directly decreasing the force that drives it: copyright protection that makes rents available to makers of derivatives. This could be achieved, for example, by a dramatically shorter duration of the copyright in derivative works. This lever is less accurately targeted than the previous one. It is underinclusive because it targets only one source of rent dissipation, wasteful races between duplicative derivatives. More importantly, it is overinclusive because, unlike novelty, it does not instruct courts to examine directly the degree of substitution, but rather relies on the proxy category of derivatives. In reality, not all derivative works exhibit a high degree of substitution with others. Reducing the incentive to create such nonduplicative derivatives that offer undiluted supramarginal benefits may be a net loss. Another difficulty of this strategy is the zone of uncertainty created by the need to differentiate between derivative works that receive reduced protection and nonderivatives entitled to stronger

copyright.[281] Reducing copyright for derivatives, however, is free from the serious costs associated with relying on a strong derivative-works entitlement to curb secondary-level dissipation. Reducing protection for derivatives does not fuel rent dissipation on the primary level. Nor does it suffer from the disadvantages of centralized control over secondary innovation. Reducing the available rents in secondary markets means that fewer works will enter, but many minds are still free to try, free from the power of central control.

An informal version of the strategy described here already exists in patent law and has long been understood as a mechanism for reducing rent dissipation. In patent law "pioneer" inventions, meaning inventions that supply substantial new value and exhibit a smaller degree of substitution with existing ones, receive stronger protection.[282] This is achieved through broader claim construction, a generous application of the enablement standard to include many analogues to the core invention disclosed, and a broad application of the doctrine of equivalents.[283] The combined effect of the application of these rules is to create, de facto, two tiers of patent protection: a stronger level to pioneer inventions and a weaker one for more run-of-the-mill inventions that are likely to exhibit a higher degree of substitution.

To a lesser extent, the same logic already exists in an embryonic form in various parts of copyright law. Those features are the very ones that in the earlier discussion of the derivative-works entitlement we described as showing that copyright doctrine does not track rent dissipation concerns well.[284] For example, the second factor that courts are instructed to

---

281. The need to define the borderline between reproduction and derivative works already arises from the first recommendation, discussed above, of restricting the derivative-works entitlement. *See supra* subpart III(A).

282. *See* Cont'l Paper Bag Co. v. E. Paper Bag Co., 210 U.S. 405, 415 (1908) ("[A] greater degree of liberality and a wider range of equivalents are permitted where the patent is of a pioneer character." (quoting Cimiotti Unhairing Co. v. Am. Fur Ref. Co., 198 U.S. 399, 406 (1905)); Price v. Lake Sales Supply R.M., Inc., 510 F.2d 388, 394 (10th Cir. 1974) ("[A] patent which constitutes a marked improvement in the art is entitled to a substantial range of equivalents . . . ."); *In re* Hogan, 559 F.2d 595, 606 (C.C.P.A. 1977) (noting that pioneer inventions "deserve broad claims to the broad concept"); 5B DONALD S. CHISUM, CHISUM ON PATENTS: A TREATISE ON THE LAW OF PATENTABILITY, VALIDITY AND INFRINGEMENT § 18.04[2], at 18-750 (2007) ("[A] greater scope of equivalents will be afforded to patents claiming pioneer inventions or important improvements . . . ."); Merges & Nelson, *supra* note 219, at 848 ("[T]here is an argument for granting a broad set of claims for pioneering inventions.").

283. *See* Abramowicz, *Uneasy Case for Copyright*, *supra* note 1, at 1669 ("Copyright law is more likely to restrict fair use and tolerate rent-dissipating entry for creative works, which are less likely to be redundant and thus rent dissipating . . . .").

284. *See supra* subsection II(B)(3)(a). There is no contradiction here. Earlier we discussed thin protection and the second fair use factor in the context of the claim that tight control of primary works reduces rent dissipation on the secondary level. In that context more protection to highly original primary works is ill suited to minimize rent dissipation on the primary level. Here, we discuss these features as a way to discourage rent dissipation by reducing the rents that attract entry of substitute works. The different framework makes all the difference. Viewed from this

consider when deciding whether a use is exempted by the fair use doctrine is the nature of the copyrighted work.[285] One common inquiry under this factor is the degree of originality of the copyrighted work, with a lower degree of originality cutting in favor of fair use.[286] Courts often apply this factor mechanically and don't appear to impute much importance to it. Viewed through the lens of rent dissipation, however, this inquiry receives new meaning. A higher degree of exempting certain uses as fair as a function of lower originality follows the mold of less protection to more duplicative works. Just like weaker protection to derivative works, this fair use factor can reduce rent dissipation by lowering rents where a higher degree of substitution is present.[287]

Another example is the rule stated by the Supreme Court in *Feist*, under which works that exhibit only a small degree of originality, such as works that make a relatively small new contribution by combining uncopyrightable elements, receive only "thin" copyright protection.[288] This rule is often understood to mean that the protectable parts of the work receive weaker protection, for example by limiting infringement to cases fairly close to literal reproduction.[289] One treatise writer observes that this understanding is based on a "false principle."[290] He plausibly explains that thin protection simply applies the general principle that only the original parts of a work receive protection; but the strength of protection given to the parts that are protectable is not any weaker, by, for example, being limited to literal reproductions.[291] Understanding thin copyright as a strategy for reducing rent dissipation sheds new light on the question. From this perspective, the relevant feature of low originality works is the high degree of substitution in the relevant market. For example, a map that incorporates many factual elements similar to other maps and whose originality consists in some thin layer of original expression (such as its color scheme) is likely to be a close substitute for many other maps. This raises the concern of substantial rent dissipation and gives thin protection a new rationale. Thin protection, in the sense of weaker protection to the

---

vantage point, lower protection to less novel works helps reduce rent dissipation generated by such works operating as close substitutes of each other.

285. 17 U.S.C. § 107(2) (2012).

286. *See supra* note 186.

287. *See supra* note 272.

288. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 348–49 (1991) (concluding a compilation of factual information is solely entitled to thin copyright protection because its sole source of originality is the selection and arrangement of the facts themselves).

289. *See* NIMMER ON COPYRIGHT, *supra* note 98, § 13.03[A], at 13-66.2 ("'[S]uper-substantial similarity' must pertain when dealing with works subject to only 'thin' protection." (citations omitted)).

290. 2 WILLIAM F. PATRY, PATRY ON COPYRIGHT § 3:68 (2014).

291. *Id.*

original parts, serves as a check on rent dissipation by removing some of the copyright-generated rents in this area.

The point of these examples is not that existing copyright law is already optimized in this respect, but rather that the logic of a weaker protection as a check on rent dissipation exists within copyright law in a somewhat haphazard form. This logic could be extended through a categorically weaker form of protection afforded derivative works, designed to achieve the same purpose in a more systematic and effective way.

D. Overall Weaker Protection

One final means for combating copyright-induced rent dissipation is simply to reduce the overall level of copyright protection. This is the bluntest tool of the lot. Reducing copyright protection by, for example, significantly trimming its duration or narrowly construing the scope or sweep of some of its general entitlements, does not target specific cases where a high degree of rent dissipation is likely. As such, it is clearly overinclusive. Some substantial supramarginal benefits may be foregone, both from completely new innovations and from those that exhibit only a small level of substitution with existing works. The countervailing benefit will of course be reduced copyright rents, diminishing the incentives for wasteful entry so as to curb rent dissipation in all—primary and secondary—markets, both between and across primary works and their derivatives. To the extent that rent dissipation is a serious problem under current levels of copyright protection, the trade-off may be worth it. If one takes the view that more calibrated adjustments of copyright's legal levers, designed to target rent dissipation at a more fine-grained level, are beyond the capacity of our lawmaking institutions, adjustment of copyright at this crude aggregate level may be all that remains.

Conclusion

This Article makes three interventions in the field of economic analysis of copyright.

The first is to clarify some fundamental elements of the economics of copyright that are too often either obscured or outright denied in existing scholarship. One such obscured element is the fact that, contrary to common observation, copyright is not a response to a public-goods problem. In respect to copyright, the two characteristics of information goods as public goods pull in opposite directions. Copyright is a solution to the policy problem created by the nonexclusionary nature of informational works that results, in turn, in a new problem in the form of restricted access to nonrivalrous goods. Second, in contrast to recent assertions, generating incentives through copyright always involves conferring the power to price above marginal cost. And in the absence of costless, perfect price discrimination, this always involves some deadweight loss. Incentive-

generating copyright and pricing power are logical correlatives. The one does not exist without the other. This remains unchanged even when a copyright owner does not enjoy a monopoly and even if a copyrighted work has to compete with substitutes. The last feature of copyright highlighted here is that its inescapable trade-offs between incentive benefits and access (or other) costs are not internal to a particular innovation but rather operate over different markets or innovations. Copyright necessarily involves certain costs incurred with regard to inframarginal innovations to obtain the benefits of other supramarginal innovations.

Our second intervention is evaluating what, on the theoretical level, the recent introduction of product differentiation theory adds to the standard picture of the economics of copyright. Replacing the standard monopoly-pricing analysis with the framework of product differentiation does not change any of the fundamental elements of the economics of copyright just described. Product differentiation theory operates within the same basic framework of copyright as a set of trade-offs between supramarginal benefits and inframarginal costs. The contribution of the new theoretical perspective lies in refining our understanding of some of those benefits and costs. On the benefits side, product differentiation theory's important new insight is that much of the supramarginal works incented by copyright are partial substitutes for existing works and therefore only partially serve new previously unsatisfied demand. It follows that the diminishing returns of copyright protection are attributable now to two distinct dilutive effects. The net social value of completely new works attracted by additional increments of copyright tends to fall because of the diminishing ratio between the innovation's development cost and its social benefit. By contrast, the net value of innovations that operate as partial substitutes in inframarginal markets falls because as product space becomes more crowded, a larger portion of the private value of these innovations is attributable to demand diversion and a smaller part represents demand creation. On the inframarginal cost side, product differentiation theory adds two important revisions. First, it instructs that the competitive pressures of entry by partial substitutes may temper, but never completely eliminate, the deadweight loss effects of copyright. Second, it reveals a new, significant cost produced by entry of partial substitutes in the form of the duplicative cost of their development.

Finally, we distill the central policy implications of product differentiation analysis and identify what we think are the most plausible set of doctrinal reforms to pursue in response. The central thrust of product differentiation's revised understanding of copyright's costs and benefits is to sensitize us to two related sources of rent dissipation: inframarginally, there is a shift in focus on costs from deadweight loss to wasteful, duplicative entry, and supramarginally, we see the benefits of increasingly close substitute innovations. Rent dissipation is not, contrary to some

current proposals, effectively addressed by ratcheting up copyright protection. The hope that copyright's centralized control power could curb wasteful entry evaporates the moment one understands that copyright is also the cause that generates duplicative entry, by increasing the cannibalizing returns held out to entrants. Proper understanding of product differentiation theory orients the analysis, then, toward doctrinal mechanisms for reducing copyright's generation of the duplicative rents in the first place. Such mechanisms vary from narrowly targeted tools, such as a novelty-focused threshold originality requirement, to blunter instruments, such as weakening overall copyright protection. If one were to generalize, the rise of product differentiation theory would seem at bottom to provide some new reasons for skepticism toward the current excesses of strong copyright.

Experimental Tests of Intellectual Property Laws' Creativity Thresholds

Christopher Buccafusco,* Zachary C. Burns,** Jeanne C. Fromer*** & Christopher Jon Sprigman****

Introduction

In the United States, intellectual property (IP) law is intended to encourage the production of new creative works and inventions.[1] Copyright and patent laws do this by providing qualifying authors and inventors with a bundle of exclusive rights relating to the use and development of their creations.[2] Importantly, however, these fields differ greatly in the ways that they determine whether some new creation is sufficiently innovative to merit legal protection. Copyright law sets the creativity bar especially low for new works of authorship, whereas patent law demands that a putative inventor prove that her creation is highly innovative. Although this difference has been noted repeatedly in the past and explained as a matter of various differences between copyrightable and patentable subject matter (including differing goals of the two regimes),[3] relatively little research has focused on whether the different IP thresholds affect the incentives and behavior of creators.

---

* Associate Professor and Co-Director of the Center for Empirical Studies of Intellectual Property, IIT Chicago-Kent College of Law; Visiting Associate Professor, Benjamin N. Cardozo School of Law.

** Visiting Assistant Professor of Management & Organizations, Kellogg School of Management, Northwestern University.

*** Professor of Law and Co-Director, Engelberg Center on Innovation Law & Policy, New York University School of Law.

**** Professor of Law and Co-Director, Engelberg Center on Innovation Law & Policy, New York University School of Law. The authors gratefully acknowledge the research assistance of Eric Holmes, Garrett Jaeger, Amanda Levendowski, Amalia Sax-Bolder, Jackie Silverman, and Christoffer Stromstedt. In addition, we thank Mark Runco for support with Experiment 3. For unsurpassed comments on drafts and presentations of this research, we thank David Abrams, Jennifer Arlen, Oren Bar-Gill, Stefan Bechtold, Barton Beebe, Ryan Bubb, Robert Eisenberger, Richard Epstein, John Ferejohn, Brett Frischmann, Paul Heald, Oskar Liivak, Gregory Mandel, Jeffrey Rachlinski, Pamela Samuelson, David Schwartz, Catherine Sharkey, Alan Sykes, Melissa Wasserman, and the attendees of the *Texas Law Review* Symposium, faculty workshops at Cardozo, Cornell, and New York University law schools, the Conference on Empirical Legal Studies, the Intellectual Property Scholars Conference, the Society for Economic Research on Copyright Issues, and Works in Progress in Intellectual Property. The authors are grateful for a grant from Google that supported this research.

1. *See infra* subpart I(A).

2. We use the generic term "creation" to cover both copyrightable works of authorship and patentable inventions.

3. *See infra* subpart I(B).

Legal scholarship on the effects of differing IP thresholds on creators has generally relied on standard economic assumptions about the way that people respond to incentives. Creators are assumed to be rational and to respond to increased incentives by producing more and better creations.[4] According to this reasoning, because patent law requires more creativity as a precondition to the conferral of IP rights compared to what copyright law requires, creators subject to the patent regime will be encouraged to be more creative than those subject to the copyright regime.

Recent research in the social sciences, however, suggests that the connection between incentives and behavior—particularly with regard to creativity—is not always so straightforward. Although some research indicates that providing incentives to act creatively has the expected effect of increasing creativity, other research suggests that offering certain types of incentives can undermine creative behavior. For example, monetary incentives to perform creative tasks may dampen creativity. In such cases, the monetary incentive may create an extrinsic motivation for the behavior that can "crowd out" the intrinsic motivation to be creative. Moreover, and importantly for our purposes, increasing the magnitude of an incentive to be creative may not always lead to more or better behavior. Once creativity incentives are sufficiently salient or intense, there is a risk that people will be overly focused on achieving the incentive and "choke."

Of course, the kinds of creativity that IP law deals with are highly varied.[5] The innovative leap associated with designing a graphical user interface or with developing a new drug may be quite different from creativity involved in painting or poetry. There may also be differences in creativity *within* the separate IP regimes: Although both painting and poetry are within the domain of copyright law, thinking creatively about line, shape, and color could be very different from thinking creatively about diction, meter, and rhyme. Because the cognition associated with these efforts may be very different, one might think that the effects of thresholds on creativity could be different as well.

In the series of experiments reported in this Article, we extend the research on the effects of incentives for creativity into the realm of intellectual property. Specifically, we test whether the existence of a creativity threshold that conditions entry into a prize lottery on meeting certain performance standards affects how creative people are. The experiments reported here involve various creativity tasks in which subjects are randomly assigned to conditions that are intended to model the different creativity thresholds employed by copyright and patent law. Doing so

4. *See infra* notes 91–94 and accompanying text.

5. *See generally* Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441 (2010) (utilizing the psychology of creativity to analyze the differences in protectability standards between patent and copyright law).

allows us to test whether the existence and nature of a threshold increases, decreases, or does not affect subjects' creativity.

This research contributes to the growing debates about whether copyright law's creativity threshold is set too low and should be increased and whether patent law's creativity threshold is appropriately set. In recent years, some scholars have questioned whether copyright law's creativity threshold ought to be raised to stimulate the production of works that are more creative. Other scholars suggest that copyright and patent laws' respective protection thresholds are more or less properly calibrated in light of their differing goals. Although our research cannot answer comprehensively the question of where to set these laws' thresholds given the many other significant issues at stake, it is valuable to know whether "hoisting" copyright's creativity threshold[6] or whether downgrading patent's creativity threshold would be likely to improve certain kinds of creativity. More broadly, this research adds to the growing literature in law, psychology, economics, and management on the effects of incentives on behavior.[7]

In Part I, we explain the distinction between the creativity thresholds employed by copyright and patent laws and the justifications given for the distinction. We also survey recent suggestions that copyright's low threshold be raised to promote greater creativity. Part II reviews research on the study of creativity, including a discussion of preferred creativity metrics and studies of incentives to act creatively. In Part III, we report four original experiments designed to measure the effects of different thresholds on creativity. Three experiments employ different creativity tasks, and an additional non-creative task serves as a control. Part IV discusses the implications of our findings for IP law and for creativity and innovation more generally.

I. Thresholds in Patent and Copyright Laws

A. Utilitarianism in Intellectual Property

The Supreme Court, Congress, and many legal scholars consider utilitarianism the dominant justification for American copyright[8] and patent

6. Joseph Scott Miller, *Hoisting Originality*, 31 CARDOZO L. REV. 451, 464, 488–89 (2009).

7. For a general background of the issues related to experimental law and economics, see Jennifer Arlen & Eric L. Talley, *Introduction*, *in* EXPERIMENTAL LAW AND ECONOMICS, at xv (Jennifer Arlen & Eric L. Talley eds., 2008).

8. *See, e.g.*, Act of May 31, 1790, ch. 15, 1 Stat. 124, 124 (repealed 1831) (declaring the purpose of the first U.S. copyright law to be "An Act for the encouragement of learning"); Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 558 (1985) (discussing congressional intent that copyright be a vehicle of free expression and the dissemination of ideas); 122 CONG. REC. 2834 (1976) (statement of Sen. John McClellan) ("The Constitution makes clear that the purpose of protecting the rights of an author is to promote the public interest."); Shyamkrishna

laws.[9] According to utilitarian IP theory, copyright law provides the incentive of exclusive rights for a limited duration to authors to motivate them to create culturally valuable works.[10] Without this incentive, the theory suggests, authors might not invest the time, energy, and money necessary to create these works because their creations might be copied cheaply and easily by free riders, eliminating authors' ability to profit from their works.[11]

Parallel reasoning supports a limited period of exclusive rights that patent law affords inventors for their technologically or scientifically valuable inventions. Public benefits accrue by rewarding inventors for taking two steps they likely would not otherwise have taken: first, to invent, and possibly commercialize, and second, to reveal information to the public about these inventions that stimulates further innovation.[12]

Balganesh, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569, 1576–77 (2009) ("[C]opyright law in the United States has undeniably come to be understood almost entirely in utilitarian, incentive-driven terms."); William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989) (describing the attempt to strike a balance between the "public good aspect" and private incentives as the central problem of copyright law).

9. *See, e.g.*, Diamond v. Chakrabarty, 447 U.S. 303, 307 (1980) (indicating that the goal of patent law is to provide private incentives to ultimately benefit the public through the introduction of new products to the economy, the creation of jobs, and betterment of citizens' lives); Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 330–31 (1945) ("The primary purpose of our patent system is not reward of the individual but the advancement of the arts and sciences. . . . [I]t is not a certificate of merit, but an incentive to disclosure."); Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1597–99 (2003) (pointing to "[t]he short term of patent protection, the broad right to prevent independent development of an idea, and the control patent law can give over products never built or contemplated by the patent owner" as confirmation that the philosophy behind patent protection is utilitarian); F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 697–98 (2001) ("[T]he consensus among those studying the American patent system is to focus on utilitarian approaches."). Utilitarianism aligns fluently with (and is frequently justified by) the U.S. Constitution's grant of power to Congress "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." U.S. CONST. art. I, § 8, cl. 8. Other theories offered to justify copyright and patent laws include Lockean labor theory and Hegelian personality theory. *See generally* ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY (2011) (questioning the utilitarian justification for IP rights and offering a new theory, incorporating Kantian theory); Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745 (2012) (surveying alternatives to the utilitarian justification for intellectual property protection, including Hegelian personality theory).

10. Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1197 (1996).

11. *E.g.*, Alina Ng, *The Author's Rights in Literary and Artistic Works*, 9 J. MARSHALL REV. INTELL. PROP. L. 453, 454 (2009); Wendy J. Gordon, Professor of Law and Paul J. Liacos Scholar in Law, Boston University School of Law, Panel Discussion at the Cardozo Intellectual Property Law Program Symposium: The Constitutionality of Copyright Term Extension: How Long Is Too Long? (Aug. 30, 1999), *in* 18 CARDOZO ARTS & ENT. L.J. 651, 676–77 (2000) (accepting the theory of economic incentives for authors under an instrumentalist policy, but arguing its effectiveness wanes after a certain duration).

12. Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 547–49 (2009). Utilitarian

Fundamentally, utilitarian theories of intellectual property rest on the premise that the benefit to society of creators crafting valuable works offsets the costs to society of the incentives the law offers to creators.[13] Because this utilitarian approach establishes a cost–benefit analysis, the leading scholarly analyses of intellectual property have used an economic lens.[14]

Although IP law is generally understood as a mechanism for providing appropriate incentives to creators, it does not do so directly. Unlike the provision of prizes or grants,[15] IP law does not directly provide creators with rewards for producing new works and inventions. Instead, it provides sets of exclusive rights that potentially provide creators greater returns on their investments.[16] For example, there are many copyrighted works and patented inventions that are essentially valueless despite the IP rights that attach to them.[17] In order to be valuable, the works and inventions still must succeed in the market. Copyrights and patents themselves do not convey any specific value; they simply make it easier for the owners of

---

thinking comes in different flavors. One is prospect theory, which suggests that inventors are rewarded with a patent right to centralize investment in the patented invention's commercialization and improvement, which in turn benefits society. *E.g.*, Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 266 (1977). A related theory advocates for encouraging commercialization because of its valuable role in diffusion of inventions. *E.g.*, Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 396–97 (2008). Another is the signaling theory, which proposes that patents are useful signals to financiers that the patenting firm is a worthy investment. Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 636–37, 648 (2002); Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 37 (2005).

13. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEXAS L. REV. 989, 996–97 (1997).

14. *See, e.g.*, SUZANNE SCOTCHMER, INNOVATION AND INCENTIVES 60–61 (2004) (discussing incentive systems and their role in technological innovation from an economist's perspective); John P. Conley & Christopher S. Yoo, *Nonrivalry and Price Discrimination in Copyright Economics*, 157 U. PA. L. REV. 1801, 1805 (2009) (applying an economics-based public good theory to copyright); F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55, 59 (2003) (proposing a model system for patent rules that operates to minimize the social costs of patents); Lemley, *supra* note 13, at 994–97 (acknowledging the importance of economic theory in analyzing IP issues).

15. *See generally* WILLIAM W. FISHER III & TALHA SYED, INFECTION: THE HEALTH CRISIS IN THE DEVELOPING WORLD AND WHAT WE SHOULD DO ABOUT IT (forthcoming 2015), *available at* http://cyber.law.harvard.edu/people/tfisher/Drugs_Chapter7.pdf (discussing prize incentive systems, which reward creators for their creations, and their potential application to the patent system); Nancy Gallini & Suzanne Scotchmer, *Intellectual Property: When Is It the Best Incentive System?*, *in* 2 INNOVATION POLICY AND THE ECONOMY 51, 53–55 (Adam B. Jaffe et al., eds., 2002) (exploring prize systems and procurement or grant systems, which provide advances for a creator to finish a commissioned project, as alternatives to the IP system).

16. *See infra* text accompanying notes 29, 34–35.

17. *See* Herbert Hovenkamp, *Response: Markets in IP and Antitrust*, 100 GEO. L.J. 2133, 2139 (2012) ("Copyrights are only as valuable as the works to which they are attached, and these often become economically worthless long before the copyright expires."); Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75, 81 (2005) ("Many patents are virtually worthless . . . because they cover technology that is not commercially important . . . .").

commercially valuable works to thrive in the marketplace by limiting some forms of competition.[18] Accordingly, one of the key features of how IP law provides incentives to be creative is the way it structures the mechanisms by which creations are deemed worthy of rights.[19] Not every putative work or invention receives a copyright or patent.[20] As we describe in the following subpart, only those that clear some creativity threshold merit protection.

B. Protectability in Patent Law and Copyright Law

American patent and copyright laws implement utilitarianism in different ways,[21] and their respective protectability standards are also strikingly distinct. As this subpart shows, patent law ensures that relatively few inventions will qualify for protection, as compared with creations that qualify for protection under copyright law's more permissive standard.

Patent law protects inventions so long as an applicant demonstrates that his or her invention is novel, useful, and nonobvious.[22] Patents are granted after successfully undergoing examination by the Patent and Trademark Office to ascertain that an invention meets patentability conditions and the description in the patent application satisfies certain disclosure requirements.[23] The patent right permits the patentee to exclude others from practicing the invention claimed in the patent for a term of typically twenty years from the date the patent application was filed.[24]

Patent law's first requirement for patentability—novelty—requires principally that the invention was not "patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention."[25] The second patentability requirement is nonobviousness:

---

18. *See* F.M. Scherer, *The Innovation Lottery*, *in* EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY 3, 3–21 (Rochelle Cooper Dreyfuss et al. eds., 2001).

19. Fromer, *supra* note 5, at 1457–59.

20. *See infra* subpart I(B).

21. For analyses of some specific difference between the two bodies of law, see, for example, Fromer, *supra* note 5, at 1447–49, 1451–53; Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 720–22 (2009) [hereinafter Fromer, *Claiming IP*]; Jeanne C. Fromer & Mark A. Lemley, *The Audience in Intellectual Property Infringement*, 112 MICH. L. REV. 1251, 1262–73 (2014); Lemley, *supra* note 13, at 1035–36; Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 495 (2004).

22. 35 U.S.C. §§ 101–103 (2012).

23. *Id.* § 131. The Patent Act requires disclosure of certain content within the patent by calling for a written description and enablement. *Id.* § 112. *See generally* Fromer, *supra* note 12 (emphasizing the importance of disclosure for patent law's goals).

24. 35 U.S.C. § 154(a).

25. *Id.* § 102 (detailing exceptions for certain allowable disclosures, but also disallowing patents when "the claimed invention was described in a patent . . . , or in an application for patent published . . . , in which the patent or application, as the case may be, names another inventor and

> [A Patent] may not be obtained . . . if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.[26]

The third requirement is utility, and is most frequently associated with the idea that an invention must have a practical utility, meaning a specific and substantial utility.[27]

Contrast this situation with the relative ease of qualifying for copyright protection. Copyright law safeguards "original works of authorship fixed in any tangible medium of expression, now known or later developed," including literary works, sound recordings, movies, and computer software code.[28] A copyright holder receives the exclusive right to reproduce the work, sell copies of it, and prepare derivative works, among other things,[29] typically until seventy years after the author's death.[30]

The Supreme Court's most recent formulation of the originality requirement occurred in *Feist Publications, Inc. v. Rural Telephone Service Co.*,[31] a case involving the copyrightability of a local telephone directory that listed individuals' names in alphabetical order along with their towns and telephone numbers.[32] The *Feist* Court held that work is original so long as it "was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity."[33] The requisite level of creativity, according to the Supreme Court, "is extremely low; even a slight amount will suffice."[34] A work must merely evidence "intellectual production, . . . thought, and conception."[35] Originality does not rise nearly to patent's requirement of true novelty; a minimally creative work is protectable even if there is a nearly

---

was effectively filed before the effective filing date of the claimed invention").

26. *Id.* § 103.

27. *E.g.*, *In re* Fisher, 421 F.3d 1365, 1371 (Fed. Cir. 2005).

28. 17 U.S.C. §§ 101, 102(a), 117 (2012). To obtain copyright protection, copyright holders need not do more than create an original work. There is no requirement that a work be published to be protected. *Id.* § 102 (requiring only that a work be fixed in "any tangible medium of expression" to be copyrightable).

29. *Id.* § 106 (reserving to the copyright owner the exclusive right to reproduce works; prepare derivative works; distribute works by sale, rental, lease, or lending; perform works publicly; display works publicly; digitally transmit certain works; and authorize others to exercise these rights).

30. *Id.* § 302(a).

31. 499 U.S. 340 (1991).

32. *Id.* at 342.

33. *Id.* at 345.

34. *Id.* Some older decisions reasoned otherwise, finding that copyright ought to be bestowed only on very creative works, of the type that "require[] genius for . . . [their] construction." Jollie v. Jacque, 13 F. Cas. 910, 913 (C.C.S.D.N.Y. 1850) (No. 7437).

35. *Feist*, 499 U.S. at 362 (internal quotation marks omitted).

identical work, so long as the other work was not copied.[36] As Judge Learned Hand observed, "[I]f by some magic a man who had never known it were to compose anew Keats's Ode on a Grecian Urn, he would be an 'author,' and, if he copyrighted it, others might not copy that poem, though they might of course copy Keats's."[37] It is thus the rare work that will not meet the low threshold of originality. For example, the Court held that the white pages telephone directory at issue in *Feist* was insufficiently original because its factual raw data did not owe its existence to the directory creator and the selection and alphabetical arrangement of the directory entries was not creative enough.[38] The threshold for copyright protection is thus minimal but not absent.

It is readily apparent that patent law sets a relatively high barrier to patentability, whereas copyright law sets a relatively low barrier to copyrightability.[39] This distinction means that a much higher percentage of works in copyright's realm can qualify for protection than in patent's realm.[40]

There are various explanations for this stark difference between patent and copyright laws. One commonly invoked justification is that the differing protectability standards are justified by the narrower scope of copyright law and the broader scope of patent law.[41] Copyright's scope is narrower than patent's in a few regards, including that copyright law does not bar independent creation of a protected work while patent law does. Copyright law also embraces broader defenses to infringement, notably fair use, that patent law lacks.[42] This narrower scope has resulted in the argument that we ought to feel comfortable with copyright's more readily available protection, as culture has continued to develop apace.[43] On the other hand, patent law needs a stricter threshold, the argument goes, because scientific progress would stall if too many inventions were granted patent law's broad rights.[44]

---

36. *Id.* at 345.

37. Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49, 54 (2d Cir. 1936). Others might copy Keats's poem because any copyright on it has long expired, leaving the work in the public domain. John C. O'Quinn, *Protecting Private Intellectual Property from Government Intrusion: Revisiting* SmithKline *and the Case for Just Compensation*, 29 PEPP. L. REV. 435, 504 n.455 (2002).

38. *Feist*, 499 U.S. at 361–64. As another illustration, the Ninth Circuit held that a lamp design made up of preexisting parts was not sufficiently original to qualify for copyright protection. Lamps Plus, Inc. v. Seattle Lighting Fixture Co., 345 F.3d 1140, 1146–47 (9th Cir. 2003).

39. Fromer, *supra* note 5, at 1453.

40. *See id.*

41. *E.g.*, Dale P. Olson, *Copyright Originality*, 48 MO. L. REV. 29, 34 (1983).

42. Shira Perlmutter, *Freeing Copyright from Formalities*, 13 CARDOZO ARTS & ENT. L.J. 565, 587 (1995).

43. Olson, *supra* note 41, at 34.

44. *Id.*; *see also* Fromer, *supra* note 5, at 1453–54 (criticizing this theory's explanatory

Alternatively, Paul Goldstein suggests that it is the different goals underlying copyright and patent laws that lead to the distinct protectability thresholds. He proposes that "[t]he aim of copyright law is to direct investment toward the production of abundant information, while the aim of patent law is to direct investment toward the production of efficient information."[45] Goldstein reasons that the easily satisfied standard of originality in copyright law leads to the creation of plenty of artistic works.[46] He contrasts that with patent law's stricter requirements of novelty, nonobviousness, utility, and disclosure, which channel innovators' energies to create the most effective scientific and engineering inventions.[47]

In prior work one of us provides another explanation: "[T]he distinctions in the protectability standards governing patent and copyright law primarily accord with current psychological findings on creativity, even though it is unlikely that these findings actually motivated the enactment of

---

power).

45. 1 PAUL GOLDSTEIN, GOLDSTEIN ON COPYRIGHT § 2.2.1 (3d ed. 2013).

46. *Id.*

47. *Id.* Goldstein suggests another reason for the different standards: an indexing theory. He claims that "unlike technological advances, which can be classified and indexed to facilitate efficient searches of the prior art, literary, musical and artistic expression cannot be effectively classified to enable authors, composers and artists to examine all pertinent prior works to determine whether their contributions substantially differ from these prior works." *Id.* at n.10. On this reasoning, then, copyright law must have a minimal standard of originality because creators under copyright's rubric cannot easily ensure that their works are distinct from preceding ones, as patent law can, thereby allowing stricter standards of novelty and nonobviousness to govern. *Cf.* Fromer, *Claiming IP*, *supra* note 21, at 781–94 (exploring whether copyrighted works might be claimed more like patented works, alleviating this difficulty).

In a different explanation, Clarisa Long suggests a judgment theory, which bases the differences in patent and copyright standards on the fact that an invention's characteristics are ascertainable objectively, while artistic works' characteristics lie in the eye of the beholder. Long, *supra* note 21, at 469–70, 487–89. Because artistic works cannot be judged in any objective fashion, copyright law imposes a subjective standard of originality. *Id.* at 488. By contrast, scientific works can be assessed on objective criteria, meriting patent law's objective standards of novelty, nonobviousness, and utility. *Id.* at 503; Note, *Protecting the Artistic Aspects of Articles of Utility: Copyright or Design Patent?*, 66 HARV. L. REV. 877, 885 (1953). *But cf.* Fromer, *supra* note 5, at 1454–55 (criticizing the assumptions on which this theory rests).

John Wiley offers another explanation: a learning theory. He hypothesizes that patent law requires novelty and nonobviousness because of the imperative for scientists and engineers to learn what has come before them. John Shepard Wiley, Jr., *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119, 146 (1991). Patent law requires inventors to review what others in the domain have already accomplished, thereby producing the opportunity for the inventor to learn from and build upon the prior art and create something sufficiently different. *Id.* According to Wiley, this encouraged process of innovation accords with the notion that scientific and technological innovation is cumulative. *Id.* Wiley thinks copyright is different. He indicates that "[i]t is conventionally desirable for composers to know the literature, but a judge would seem brazen to assert that excavating musical artifacts was the most efficient way to compose new music." *Id.* at 147. Therefore, there is no requirement in copyright law that an artist ensure that his creation is novel before qualifying for copyright protection. *But cf.* Fromer, *supra* note 5, at 1456 (criticizing assumptions on which this theory rests).

these different legal standards."[48] When evaluating inventive creativity, people tend to value large degrees of newness, whereas when evaluating artistic creativity, people instead prefer some but not too much newness.[49] The different thresholds of protectability in patent and copyright law seem to accord with these differences in the creative emphases.[50]

Despite these arguments in favor of distinct threshold regimes for copyright and patent laws, some scholars have suggested that copyright law's protectability threshold ought to be raised, putting it in greater sync with patent law. Gideon Parchomovsky and Alex Stein propose that the scope of copyright protection ought to be calibrated to the degree of originality in the work: the more originality, the more protection.[51] According to Parchomovsky and Stein, copyright law's low threshold sets a target for creativity that results in creators barely clearing the bar.[52] If the target were set higher, they argue, creators would be incentivized to produce more creative works.[53] Similarly, Joseph Scott Miller argues that copyright law ought to be structured to "encourag[e] those who experiment with expression to push against, and even break past, the norms and

---

48. Fromer, *supra* note 5, at 1443.

49. *Id.* at 1471–74, 1479–83.

50. *Id.* at 1483–1508. David Fagundes and Jonathan Masur explore a related issue, as to the fact that copyrights vest in authors automatically upon fixation, whereas patents must be granted by the government after a relatively costly screening process. *See* David Fagundes & Jonathan S. Masur, *Costly Intellectual Property*, 65 VAND. L. REV. 677, 679 (2012). They suggest that patent law wisely implements this screen to:

> [D]eter[] applicants from seeking patents when the value of the exclusive right is less than the price of overcoming the screen. Moreover, because of a distinctive asymmetry in patent law's generation of social and private value, the effect of this screen is to deter the production only of those low private value patents that also have low (or negative) social value. Examined in this light, the costly examination process is not a deadweight loss at all, but an efficient way to exclude the very kind of patents most likely to generate anticommons concerns.

Id. at 680. By contrast, because copyright protection is much narrower, the presence of copyright screens as in patent law would be harmful in that they would "deter the creation of works that have low value for their author but high value for the public—thus precluding production of one of the paradigmatic kinds of work that copyright was designed to create." *Id.*

51. Gideon Parchomovsky & Alex Stein, *Originality*, 95 VA. L. REV. 1505, 1507 (2009) ("[A]uthors of highly original works will not only receive greater protection, but will also be sheltered from liability if sued for infringement by owners of preexisting works. Conversely, creators of minimally original works will receive little protection and incur greater exposure to liability if sued by others."). Parchomovsky and Stein propose three mechanisms to accomplish this calibration: a "doctrine of inequivalents" to shelter highly original works from infringing the works of others, an "added value doctrine" to make infringement remedies dependent on whether the infringing or initial work has more originality, and a "sameness rule" creating a presumption of copying when minimally original works accused of infringement are substantively similar to the initial work. *Id.* at 1523–49.

52. *Id.* at 1506.

53. *Id.* at 1517. They write, "The problem with the existing design is that by rewarding minimally original works and highly original works alike, the law incentivizes authors to produce works containing just enough originality to receive protection—but not more." *Id.* at 1506.

conventions of routine expression that dominate a given genre at a given time."[54] Miller would inject a nonobviousness-like standard into copyright law.[55]

These proposals share the view that the way to encourage more creativity is to set the protectability threshold higher. Others, like Erlend Lavik and Stef van Gompel, have pushed back and argued that it would be problematic to raise copyright's protectability threshold because of the difficulty of assessing merit in the cultural domain, and because a raised standard would in any event be unlikely to perform its filtering function of protecting only aesthetically or culturally valuable works.[56]

Conversely, it is rare to find proposals that patent law's protectability standard ought to be diminished, making it more like copyright law's.[57] Most scholars suggesting changes in patent law's protectability standards suggest ratcheting them up, rather than down.[58]

Key to the arguments by Parchomovsky and Stein and by Miller is the assumption that increasing the protectability threshold in copyright law will encourage people to be more creative. If the law sets a higher threshold for the vesting of rights, people who want those rights will have to be more creative. Although this assumption seems obviously correct from the perspective of classical law and economics, recent research in the social sciences suggests that the reality may be otherwise. We turn now to an overview of research on incentives and creativity.

II. Creativity Incentives

IP law's utilitarian theory requires that the law provide people with the incentive to act creatively, thereby producing something of value to society. Accordingly, determining the optimal form and level of incentives to spur creativity is a central issue in IP.[59] Although legal scholars are just now turning increasing attention to this question,[60] psychologists, sociologists, and management scientists have long been studying both creativity and the effects of incentives on creativity. This Part reviews that work. We begin by canvassing the social-science literature on creativity and incentives.

---

54. Miller, *supra* note 6, at 463–64.

55. *Id.* at 464.

56. Erlend Lavik & Stef van Gompel, *On the Prospects of Raising the Originality Requirement in Copyright Law: Perspectives from the Humanities*, 60 J. COPYRIGHT SOC'Y USA 387, 423–24 (2013).

57. For one example arguing for diminishing how novelty is assessed in certain complex fields like biotechnology, see Sean B. Seymore, *Rethinking Novelty in Patent Law*, 60 DUKE L.J. 919, 928–29 (2011).

58. *See, e.g.*, ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS 175–76 (2004) (decrying the ease with which the PTO has issued patents over the last two decades).

59. For more on this connection between creativity and intellectual property, see Fromer, *supra* note 5, at 1457–59.

60. *See infra* subpart II(B).

Next, we discuss work by IP scholars that has addressed some of these issues, and finally, we describe the motivations for the research in this Article.

A. Evidence from the Social Sciences

The social-science research on creativity and incentives has expanded dramatically over the past few decades. We describe some of that research in this subpart. We first focus on how researchers define and measure creativity. We then discuss some of their chief findings.

1. Defining and Measuring Creativity.—Although there are varying colloquial understandings of creativity,[61] the field of psychology consistently defines creativity as a process that generates a product or idea and possesses two qualities: newness and appropriateness. Newness refers to novelty or originality,[62] and appropriateness indicates that some community recognizes the contribution as socially valuable.[63] While the creative process is essentially psychological, the element of appropriateness can be evaluated only in a sociocultural context.[64] As Keith Sawyer explains: "Individual-level explanations are the most important component of the explanation of creativity . . . . But individuals always create in contexts, and a better understanding of those contexts is essential to a complete explanation of creativity."[65] Assessing creativity is not complete without reference to a work's effect on the relevant culture and its social

61. The term "creativity" came into common usage only after World War II. ROBERT PAUL WEINER, CREATIVITY & BEYOND: CULTURES, VALUES, AND CHANGE 5 (2000). Although its etymological root, "create" (derived from the Latin creatio or creatus), was in long use, the noun "creativity" was first used in the late nineteenth century as people sought a term to represent a common quality that transcends the specific artistic and scientific domains. *Id.* at 8, 89 (reciting the first usage by Adolfus William Ward in his *History of Dramatic English Literature* to describe Shakespeare's "poetic creativity").

62. We use the terms "novelty" and "originality" here in their lay sense rather than their legal sense, see *supra* subpart I(B).

63. *E.g.*, MIHALY CSIKSZENTMIHALYI, CREATIVITY: FLOW AND THE PSYCHOLOGY OF DISCOVERY AND INVENTION 25, 28–29 (1996) (defining creativity as a novel product that is accepted into a domain); R. KEITH SAWYER, EXPLAINING CREATIVITY: THE SCIENCE OF HUMAN INNOVATION 27 (2d. 2012) (understanding creativity to involve both novelty and social value to some community); Howard E. Gruber & Doris B. Wallace, *The Case Study Method and Evolving Systems Approach for Understanding Unique Creative People at Work*, *in* HANDBOOK OF CREATIVITY 93, 94 (Robert J. Sternberg ed., 1999) ("Like most definitions of creativity, ours includes novelty and value: The creative product must be new and must be given value according to some external criteria."); Robert J. Sternberg & Todd I. Lubart, *The Concept of Creativity: Prospects and Paradigms*, *in* HANDBOOK OF CREATIVITY *supra* at 3, 3 (defining creativity as "the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)").

64. SAWYER, *supra* note 63, at 209.

65. *Id.*

judgments.[66] According to Mihaly Csikszentmihalyi's influential framework, creativity can be appraised only at the intersection of individuals, the domain in which they are working, and the field (the domain's gatekeepers).[67] In a sense, the socio-psychological definition of creativity looks similar to IP law's aim of giving protection for products that are requisitely new, while leaving to society the question of how valuable the product ought to be considered.

It is one thing to explain what creativity is, but it is another thing to be able to measure it validly and reliably. Psychologists have made enormous strides over the past few decades in crafting scientific techniques to do so. A 1989 review of creativity studies found 255 different tests in use,[68] but subsequent research has considerably narrowed the scope of appropriate procedures.[69] Depending on what one is trying to measure—whether a product is creative, whether a person is creative, or whether a thought process is creative—different kinds of tests may be more appropriate than others.[70] When measuring the creativity of a product—something quite relevant to IP law—one favored approach involves consensual agreement among judges that the product has certain features, such as originality, usefulness, or value.[71] In some instances, expert judges will be appropriate, while in others lay judges provide equally valid results.[72] The virtue of the consensual agreement technique is that it does not rely on any specific theory of creativity, and it tends to model the way that creativity is assessed in the real world (that is, people simply judge products or ideas to be creative or not unguided by sophisticated academic theories of what makes them so).[73]

---

66. *See* CSIKSZENTMIHALYI, *supra* note 63, at 6 (noting that an essential prerequisite for creativity is "a culture that contains symbolic rules"); Joseph Kasof, *Explaining Creativity: The Attributional Perspective*, 8 CREATIVITY RES. J. 311, 313 (1995) (noting the importance of situational factors such as culture in assessing creativity).

67. CSIKSZENTMIHALYI, *supra* note 63, at 6, 27–30.

68. E. Paul Torrance & Kathy Goff, *A Quiet Revolution*, 23 J. CREATIVE BEHAV. 136, 143 tbl.1 (1989).

69. For a review of major areas of creativity research, see Arthur J. Cropley, *Defining and Measuring Creativity: Are Creativity Tests Worth Using?*, 23 ROEPER REV. 72 (2000).

70. *See id.*

71. *See* Beth A. Hennessey, *The Consensual Assessment Technique: An Examination of the Relationship Between Ratings of Process and Product Creativity*, 7 CREATIVITY RES. J. 193, 201 (1994) (finding interrater reliability levels of 0.93 among untrained undergraduate raters); *see also* Teresa M. Amabile, *Social Psychology of Creativity: A Consensual Assessment Technique*, 43 J. PERSONALITY & SOC. PSYCHOL. 997, 1011–12 (1984) (proposing a subjective-assessment methodology to "produce clear and reliable subjective judgments of creativity").

72. Amabile, *supra* note 71, at 1006; Hennessey, *supra* note 71, at 194.

73. John Baer & Sharon S. McKool, *Assessing Creativity Using the Consensual Assessment Technique*, *in* RESEARCH ON ASSESSMENT TECHNOLOGIES, METHODS, AND APPLICATIONS IN HIGHER EDUCATION 65, 67 (Christopher Schreiner ed., 2009).

Perhaps the most widely used creativity tests are those that measure "divergent thinking."[74] Divergent thinking refers to a person's ability to generate a multitude of ideas to an open-ended question.[75] For example, subjects might be asked to think of unusual uses of a tin can. Answers to these tests, which E.P. Torrance pioneered, are frequently scored according to fluency (number of answers provided), originality (novelty or rarity of answers), and flexibility (a measure of the different fields or categories from which the answers come).[76] Divergent thinking matches well with the ideas of "problem finding" and "problem solving" in creativity.[77] Divergent-thinking tasks have been used in a wide variety of experimental settings, and they have been studied as predictive measures of entrepreneurship.[78]

In addition, "convergent thinking" can also exhibit creativity.[79] Unlike divergent thinking, which involves generating multiple answers to an open-ended task, convergent thinking leads toward just one or a few correct answers.[80] But the narrow range of possible answers does not eliminate the role of creativity.[81] Even when there is a single optimal answer to a problem, the method of determining the solution may not be apparent and may rely on more than simple algorithmic cognition or memory retrieval.[82] Convergent creative thinking is often tested with so-called "insight problems," that measure how quickly and accurately subjects can deduce the correct answer.[83] Accordingly, non-algorithmic convergent thinking aligns well with the notion of creativity as "problem solving" discussed above.

---

74. *See generally* DIVERGENT THINKING AND CREATIVE POTENTIAL (Mark A. Runco ed., 2013) (describing divergent-thinking theories and tests for creative-thinking potential).

75. *See generally id.*

76. *See* Mark A. Runco et al., *Information, Experience, and Divergent Thinking: An Empirical Test*, 18 CREATIVITY RES. J. 269, 269 (2006).

77. *Id.*; *see also* Mark A. Runco & Shawn M. Okuda, *Problem Discovery, Divergent Thinking, and the Creative Process*, 17 J. YOUTH & ADOLESCENCE 211, 217 (1988) (finding divergent thinking to be consistent with developmental views of problem finding).

78. Michael Ames & Mark A. Runco, *Predicting Entrepreneurship from Ideation and Divergent Thinking*, 14 CREATIVITY & INNOVATION MGMT. 311, 312 (2005).

79. Cropley, *supra* note 69, at 73 (recognizing that creativity rests on both divergent and convergent thinking).

80. Arthur Cropley, *In Praise of Divergent Thinking*, 18 CREATIVITY RES. J. 391, 391 (2006).

81. *Id.* at 395–99.

82. *See id.* at 399 tbl.3 (listing numerous types of convergent-thinking processes that enable the thinker to determine a singular solution by both generating and exploring variability).

83. *See, e.g.*, Robert W. Weisberg, *Problem Solving and Creativity*, *in* THE NATURE OF CREATIVITY: CONTEMPORARY PSYCHOLOGICAL PERSPECTIVES 148, 151–53 (Robert J. Sternberg ed., 1988) (discussing perhaps the most famous such creativity task involving convergent thinking, the task of attaching a candle to the wall using only a book of matches and a box of tacks).

The kinds of creativity and innovation that are covered by IP law span the various processes and modes of cognition discussed above, although almost all of them will incorporate aspects of both divergent and convergent thinking.[84] Abstract painting likely involves mostly divergent thinking and computer programming can be a matter of non-algorithmic convergent thinking, but almost all creative fields require both the generation of novel or unusual responses as well as judgments about whether they are appropriate.[85] Accordingly, in the experiments reported below, we test the effects of creativity thresholds on both divergent and non-algorithmic convergent thinking.

2. Motivation, Incentives, and Creativity.—IP law exists to motivate creativity,[86] so understanding the relationship between motivation and creativity is essential. People can be motivated to create for a variety of reasons, but psychologists generally distinguish two classes of motivation: extrinsic and intrinsic.[87] Extrinsic motivation is motivation to engage in an activity that comes from a source that is external to the individual, such as payment of money, evaluation from a third party, or surveillance.[88] Intrinsic motivation, by contrast, is motivation that comes purely from a person's intrinsic enjoyment of or interest in the activity at hand.[89]

As IP scholars, we are interested in the interactions between intrinsic and extrinsic motivation. To varying degrees, the kinds of creativity that IP law deals with involve both kinds of motivation. Creators and inventors have manifold intrinsic and extrinsic reasons for engaging in their work.[90] To these existing reasons, IP law adds an additional extrinsic motivator: the opportunity to receive formal rights that potentially increase economic returns on creativity. We are interested in how the addition of differently structured external incentives affect creators' underlying effort and motivation.

From a classical economic perspective, the answer is simple: Motivation is motivation, and more of it is better. In order for a person to do something, she needs to have incentives that exceed the costs of

---

84. *See* Fromer, *supra* note 5, at 1477 (considering the view that convergent thinking is important to innovation in the sciences and divergent thinking important in the arts).

85. *See supra* note 63 and accompanying text.

86. *See supra* notes 8–10 and accompanying text.

87. Edward L. Deci, *Intrinsic Motivation, Extrinsic Reinforcement, and Inequity*, 22 J. PERSONALITY & SOC. PSYCHOL. 113, 113 (1972).

88. Teresa M. Amabile et al., *Social Influences on Creativity: The Effects of Contracted-for Reward*, 50 J. PERSONALITY & SOC. PSYCHOL. 14, 15 (1986); Deci, *supra* note 87, at 113.

89. Deci, *supra* note 87.

90. *See, e.g.*, Rebecca Tushnet, *Economies of Desire: Fair Use and Marketplace Assumptions*, 51 WM. & MARY L. REV. 513, 522–36 (2009) (discussing various intrinsic and extrinsic motivations of creation).

engaging in the behavior.[91] Perhaps she experiences some sense of internal pleasure or a warm glow when performing the task. Or perhaps she is paid a certain amount of money to perform the task. As long as the benefit she receives exceeds the cost of performing the task, she can be expected to engage in it. Moreover, the more incentives she receives, the better her performance. To an economist, the nature of the motivation does not matter, only its level does.[92] On this view, extrinsic and intrinsic motivations are substitutable for one another, and the addition of extrinsic motivation to an already intrinsically motivated person should increase motivation and performance.[93] As Dan Ariely and others explain, "[t]he expectation that increasing performance-contingent incentives will improve performance rests on two subsidiary assumptions: (1) that increasing performance-contingent incentives will lead to greater motivation and effort and (2) that this increase in motivation and effort will result in improved performance."[94]

Over the past several decades, however, experimental social-science research has significantly complicated this otherwise simple story. Despite general findings that extrinsic incentives tend to enhance performance on tasks that are algorithmic (simple or straightforward),[95] many studies suggest otherwise with regard to the effect of incentives to complete creative tasks. Some studies suggest that intrinsic and extrinsic incentives for creativity aren't always substitutable and that the provision of greater creativity incentives does not always result in more or better performance.[96]

To understand the interrelationship between motivation, creativity, and incentives, psychologists examine the effects of intrinsic motivation and extrinsic motivation on creativity. Some psychologists' studies find that

---

91. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 20 (2003) (discussing investments that yield social benefits in excess of costs as desirable).

92. *See* Roland Bénabou & Jean Tirole, *Intrinsic and Extrinsic Motivation*, 70 REV. ECON. STUD. 489, 489 (2003) (implying that economists have neglected psychological research showing that incentives can undermine performance).

93. *See* Deci, *supra* note 87, at 113–14 (assessing impact of different extrinsic motivations upon intrinsically motivated people).

94. Dan Ariely et al., *Large Stakes and Big Mistakes*, 76 REV. ECON. STUD. 451, 451 (2009).

95. *See* Kenneth O. McGraw, *The Detrimental Effects of Reward on Performance: A Literature Review and a Prediction Model*, *in* THE HIDDEN COSTS OF REWARD: NEW PERSPECTIVES ON THE PSYCHOLOGY OF HUMAN MOTIVATION 33, 55–57 (Mark R. Lepper & David Greene eds., 1978) (summarizing study results and finding that rewards are least disruptive when the task is adversive to the subject and algorithmic).

96. *See generally* Robert Gibbons & John Roberts, *Economic Theories of Incentives in Organizations*, *in* THE HANDBOOK OF ORGANIZATIONAL ECONOMICS 56, 90–91 (Robert Gibbons & John Roberts eds., 2013) (discussing the interplay between intrinsic and extrinsic incentives as posited by Bénabou & Tirole). Roland Bénabou & Jean Tirole respond to the psychological results showing that incentives can harm creativity by building an economic model that incorporates these psychological insights and shows why they can be rational. Bénabou & Tirole, *supra* note 92.

intrinsic motivation is more conducive to creativity than extrinsic motivation.[97] These studies typically investigate overjustification: having subjects engage in a task that they already might like to do with the promise of extrinisic reward.[98] Subjects engage in a creative task,[99] such as drawing or collage making or puzzle solving. Some are told that they will receive a reward for performance, while others are not.[100] In these situations, those subjects acting with reward expectation are judged to produce significantly less creative work than those acting without reward expectation.[101] Psychologists posit that those who are extrinsically motivated will be less creative because they will act more conventionally—to avoid taking risk—

97. Teresa M. Amabile, *How To Kill Creativity*, HARV. BUS. REV., Sept.–Oct. 1988, at 77, 79.

98. Teresa M. Amabile, *Effects of External Evaluation on Artistic Creativity*, 37 J. PERSONALITY & SOC. PSYCHOL. 221, 222 (1979).

99. *Id.*

100. *Id.*

101. *E.g.*, *id.* at 222 (discussing experimental results showing that rewarded subjects produced less creative responses than those not rewarded for participation); Regina Conti et al., *The Positive Impact of Creative Activity: Effects of Creative Task Engagement and Motivational Focus on College Students' Learning*, 21 PERSONALITY & SOC. PSYCHOL. BULL. 1107, 1109 (1995) (noting that "salient extrinsic motives, such as focusing on external evaluation, have been found to undermine . . . creativity"); Beth A. Hennessey, *The Effect of Extrinsic Constraints on Children's Creativity While Using a Computer*, 2 CREATIVITY RES. J. 151, 165 (1989) (describing experimental results showing that rewards given by a computer negatively affected the creativity of children participating in the study); *cf.* Ariely et al., *supra* note 94, at 454–67 (showing that "relatively high monetary incentives can have perverse effects on performance" for cognitively intense tasks, like creative ones). Relatedly, psychological studies systematically demonstrate that extrinsic motivation decreases subjects' intrinsic interest in a creative task. Amabile, *supra* note 98, at 229; Hennessey, *supra*. Edward Deci has refined this work by showing that some extrinsic motivators, like money, decrease intrinsic motivation, while others, such as verbal reinforcement and positive feedback, actually enhance intrinsic motivation. Edward L. Deci, *Effects of Externally Mediated Rewards on Intrinsic Motivation*, 18 J. PERSONALITY & SOC. PSYCHOL. 105, 114 (1971); Deci, *supra* note 87, at 113–18. They attribute their engagement in the task to the extrinsic motivation rather than any intrinsic motivation they might otherwise have had. Amabile et al., *supra* note 88, at 14. This effect might be due to the external motivation drawing the subjects' attention away from vaguer—but present—intrinsic motivations. *See id.* at 17–19 (verifying this explanation experimentally). Or the external motivation might lead subjects to view the task as a means to an end rather than an end in and of itself. *Id.* at 15. In fact, a number of management studies, including some focused on particular industries like open-source software, find that intrinsic motivation is the principal motivation articulated by industry participants for their work. *E.g.*, Jürgen Bitzer et al., *Intrinsic Motivation in Open Source Software Development*, 35 J. COMP. ECON. 160, 167 (2007) (finding that "the fun of programming is a major motivational driver" for open source software programmers); Karim R. Lakhani & Robert G. Wolf, *Why Hackers Do What They Do: Understanding Motivation and Effort in Free/Open Source Software Projects*, *in* PERSPECTIVES ON FREE AND OPEN SOURCE SOFTWARE 3 (J. Feller et al. eds., 2005) ("We find . . . that enjoyment-based intrinsic motivation—namely, how creative a person feels when working on the project—is the strongest and most persuasive driver."); *cf.* Henry Sauermann & Wesley M. Cohen, *What Makes Them Tick?: Employee Motives and Firm Innovation*, 56 MGMT. SCI. 2134, 2134 (2010) ("We find [m]otives regarding intellectual challenge, independence, and money have a strong positive relationship with innovative output, whereas motives regarding job security and responsibility tend to have a negative relationship.").

and will be more focused on the extrinsic motivation rather than the creative process itself.[102]

Despite this line of findings, there are other studies that suggest that extrinsic rewards do not always undermine creativity and can, in fact, enhance it. For one thing, studies by behavioral psychologists tend to find that providing reward—external motivation—increases subjects' creative performance with regard to whatever aspect the subject is being told will be judged (such as originality or fluency).[103]

Meta-analysis of these two strands of studies reconcile them by proposing that the latter set of studies instructs subjects specifically how (or with regard to which aspect) to perform creatively and the extrinsic reward then helps enhance creativity, whereas the former set of studies does not give specific instructions, resulting in the extrinsic reward decreasing creativity.[104] Moreover, when studies control for both whether specific instructions to perform creatively are provided and whether reward is provided, guidance as to performance metrics seems to explain the difference in the effect of reward.[105] The theory is that when subjects are not instructed on how to perform specifically on a creative task, they are risk averse and choose conventional solutions to the task at hand, which is detrimental to creativity.[106] But when subjects are told the metric by which they will be judged on their creativity, they strive to do well on that metric—going beyond obvious approaches to the task—when there is a reward.[107] These results suggest that when it is possible to specify how to

---

102. Amabile, *supra* note 98, at 222. For similar reasons, extrinsically motivated individuals tend to perform better on conventional, algorithmic tasks precisely because there is a straightforward path to completing the task. *Id.* (citing McGraw, *supra* note 95).

103. *E.g.*, John Glover & A.L. Gary, *Procedures to Increase Some Aspects of Creativity*, 9 J. APPLIED BEHAV. ANALYSIS 79 (1976) (finding this to be the case for a verbal creativity task in which points were awarded for fluency (number of different responses), flexibility (number of verb forms), elaboration (number of words per response), and originality (statistical infrequency of verb forms)).

104. Robert Eisenberger & Linda Shanock, *Rewards, Intrinsic Motivation, and Creativity: A Case Study of Conceptual and Methodological Isolation*, 15 CREATIVITY RES. J. 121, 121–25 (2003); *see also* Amabile, *supra* note 98, at 223 (citing McGraw, *supra* note 95).

105. Amabile, *supra* note 98, at 223–32 (studying this question with regard to collage making, but finding that those who received both extrinsic motivation and a general instruction to focus specifically on creativity—without more guidance—performed less creatively than those who got the same instruction but no extrinsic motivation). How specific this instruction to be creative need be is a matter of debate among psychologists. *Compare id.* (finding that those who received both extrinsic motivation and a general instruction to focus specifically on creativity—without more guidance—performed less creatively than those who got the same instruction but no extrinsic motivation), *with* Robert Eisenberger et al., *Can the Promise of Reward Increase Creativity?*, 74 J. PERSONALITY & SOC. PSYCHOL. 704, 709–12 (1998) (showing through experiments that simply instructing subjects that they will be rewarded for unusual drawings along with a basic clarification about the task—rather than being given no such instruction—enhances creativity).

106. Amabile, *supra* note 98, 228.

107. *Id.* at 230–31.

perform creatively, it is worth doing so along with providing a reward.[108] Indeed, some studies show an increase in intrinsic motivation—rather than a decrease—when subjects are offered a reward and are instructed to perform creatively.[109] Ultimately, however, one cannot simply assume that the addition of an incentive to an already motivated person will always yield more or better creative production.

Other studies suggest that the specific structure of the reward affects whether it may decrease creativity, increase it, or have no effect.[110] Related studies show that rewards that are contingent on a subject's task performance do not undermine intrinsic task interest as much as rewards that are contingent only on a subject's completion of a task.[111]

Separate from the question of intrinsic and extrinsic motivation are issues about the magnitude and structure of creativity incentives. Just as classical economic theory predicts that adding external motivation to internal motivation increases total motivation, so too does it predict that higher magnitude incentives produce greater motivation and performance than lower magnitude incentives. Recently, Dan Ariely and others have studied the effects of particular magnitudes of performance-contingent rewards on task performance.[112] Ariely and his co-investigators studied subjects in both the United States and rural India performing a variety of

---

108. *Id. But see id.* at 231–32 (noting, however, that such instruction is not always possible).

109. Eisenberger et al., *supra* note 105. Another aspect for which the studies showing reward's detrimental effect on creativity might be inapplicable is with regard to professionals. The studies discussed above focus on nonprofessionals. Psychologists speculate that the results might look different for professionals: According to Amabile, "While we might expect that some professional scientists or artists could succumb to the overjustification effect, it seems eminently clear that many highly creative people go on being creative in the face of numerous extrinsic constraints." Amabile, *supra* note 98, at 232. She theorizes that professional scientists and artists internalize how their work will be judged, and as a result, external motivators have less of an effect on them (at least detrimentally). *Id.* In addition, their intrinsic motivation is strong—likely much stronger than nonprofessional subjects—and overjustification is less likely to affect them than those whose "internal states are ambiguous or nonsalient." *Id.* In fact, empirical work bears this out. In an archival study, Dean Simonton finds no significant relationship between the creative productivity of ten classical composers at various points in their lives and the external motivation—such as honorary degrees—they received during those points. Dean Keith Simonton, *Creative Productivity, Age, and Stress: A Biographical Time-Series Analysis of 10 Classical Composers*, 35 J. PERSONALITY & SOC. PSYCHOL. 791, 801–03 (1977).

110. *See generally* Emir Kamenica, *Behavioral Economics and Psychology of Incentives*, 4 ANN. REV. ECON. 427 (2012) (reviewing "empirical findings on anomalous impacts of incentives" and suggesting that "a coherent set of principles can improve the design of incentive structures in a variety of settings").

111. Judy Cameron & W. David Pierce, *The Debate About Rewards and Intrinsic Motivation: Protests and Accusations Do Not Alter the Results*, 66 REV. EDUC. RES. 39, 39–40 (1996); Robert Eisenberger & Judy Cameron, *Detrimental Effects of Reward: Reality or Myth?*, 51 AM. PSYCHOL. 1153, 1155 (1996); David Rosenfield et al., *When Rewards Reflect Competence: A Qualification of the Overjustification Effect*, 39 J. PERSONALITY & SOC. PSYCHOL. 368, 374 (1980).

112. Ariely et al., *supra* note 94.

tasks—based on creativity, cognition, memory, or motor skills—for which the magnitude of reward varied from low to moderate to very high.[113] Payment in each condition depended on performance of the task.[114] For example, in one reported experiment, subjects would receive full payment if performance was very good, half payment if performance was merely good, and no payment if performance did not qualify as good.[115] Across the various experiments, Ariely and the others found that subjects offered low to moderate levels of reward outperformed those offered the very high level of reward.[116] They also found that the propensity to choke on a task due to increasing reward was frequently task specific and not just based on individual characteristics.[117] The authors suggest that these results are consistent with the idea that "beyond an optimal level of arousal for executing tasks, further increases in arousal can lead to a decrement in performance."[118] Importantly and surprisingly, however, the authors did not find variation between tasks involving creativity and those that did not in the study in rural India. The highest incentive level undermined performance in each case.

Relatedly, Katharina Eckartz and others recently investigated the effect of incentives on creativity using three different incentive schemes: a flat fee, a linear payment, and a tournament.[119] They presented subjects with a set of letters and asked them to construct as many words as they could within five minutes.[120] For each word, participants received a score that was more than proportionally increasing given the number of letters in the word.[121] They also used an IQ task and a number-adding task as control tasks.[122] Contrary to nearly all of the other studies described above, they found that the choice of incentive had no significant effect on performance for any of the three tasks; rather, they found that "performance depends almost entirely on individual characteristics of participants and can, on the

113. *Id.* at 454–67. For example, the levels of payment in rural India were 4, 40, and 400 Indian Rupees, respectively, in the low, high, and very high conditions. *Id.* at 454. The payment in the high-incentive treatment is close to the monthly per capita consumer expenditure in the region. *Id.*

114. *Id.*

115. *Id.*

116. *Id.* at 454–67. One important exception was the only motor-skills task given to subjects in the United States, wherein performance increased the higher the offered reward was. *Id.* at 462.

117. *Id.* at 463.

118. *Id.* at 467.

119. Katharina Eckartz et al., *How Do Incentives Affect Creativity?* 6 (Ifo Inst. Center for Econ. Studies, Working Paper No. 4049, 2012), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2198760.

120. *Id.* at 4.

121. *Id.*

122. *Id.* at 5–6.

aggregate level, hardly be influenced through incentives."[123] More specifically, they found "[i]ndividual characteristics explain for all tasks more than 60% of the observed variance in the performance. The presence or absence of different incentive schemes explain for all tasks in this experiment less than 1% of the variance."[124]

Perhaps most relevant to our questions is research on the effects of goals and thresholds on performance. In many areas of life and law, performance is not measured precisely but rather by whether or not it meets certain thresholds. For example, payment bonuses may be given out when employees meet certain thresholds in terms of hours worked or dollars billed.[125] Additional bonuses kick in at each new threshold level rather than being smoothly distributed throughout the spectrum of performance. In the legal setting, three-strikes laws, zero-tolerance policies, and drunk-driving laws based on blood-alcohol limits structure negative incentives (punishments) as binary thresholds.[126] Tiered incentive structures like these can produce various distortions in individuals' performance.

On the one hand, empirical research suggests that creation of performance goals generally leads to improved performance, because goals tend to increase people's effort, persistence, and attention.[127] Relative to people without explicit goals, those with goals tend to perform better on a

---

123. *Id.* at 17.

124. *Id.* Competition is a factor whose presence might lead to different results. Some studies suggest that competition can undermine intrinsic motivation, which might diminish creative performance. *See* Edward L. Deci et al., *When Trying To Win: Competition and Intrinsic Motivation*, 7 PERSONALITY & SOC. PSYCHOL. BULL. 79, 79 (1981) (presenting experiment results that indicate competition reduces intrinsic motivation); *cf.* Oriana Bandiera et al., *Social Preferences and the Response to Incentives: Evidence from Personnel Data*, 120 Q.J. ECON. 917, 917 (2005) (finding that "the productivity of the average worker is at least 50 percent higher under piece rates than under relative incentives," pursuant to which "individual effort imposes a negative externality on others"). Further experimental work shows, however, that competition's deleterious effect on intrinsic motivation and furthermore on creative performance obtains only for those individuals low in achievement orientation. John M. Tauer & Judith M. Harackiewicz, *Winning Isn't Everything: Competition, Achievement Orientation, and Intrinsic Motivation*, 35 J. EXPERIMENTAL SOC. PSYCHOL. 209, 236–37 (1999). Individuals high in achievement orientation retain high levels of intrinsic motivation and perform creatively even in the face of competition. *Id.*

125. *See* Paul Healy, *The Effect of Bonus Schemes on Accounting Decisions*, 7 J. ACCT. & ECON. 85, 85 (1985) (noting that "[e]arnings-based bonus schemes are a popular means of rewarding corporate executives"). *See generally* Darren Grant, The Essential Economics of Threshold-Based Incentives: Theory and Estimation (unpublished manuscript), *available at* http://www.shsu.edu/~dpg006/ws100.pdf (presenting an empirical study on the economics of threshold-based incentives).

126. *Cf.* David Friedman & William Sjostrom, *Hanged for a Sheep: The Economics of Marginal Deterrence*, 22 J. LEGAL STUD. 345 (1993) (examining the risk that a high punishment for one crime may lead an offender to commit a worse crime instead).

127. EDWIN A. LOCKE & GARY P. LATHAM, A THEORY OF GOAL SETTING AND TASK PERFORMANCE 27–29 (1990).

variety of different tasks involving physical, cognitive, and creative performance.[128]

On the other hand, the existence of certain kinds of achievement thresholds can negatively affect performance. For example, if a threshold creates a binary distinction between those who reach it and those who do not, and if all who reach the threshold receive the same reward, people are likely to behave differently than if performance is smoothly rewarded. Imagine three people, *A*, *B*, and *C*, who are trying to perform a task that is rewarded by achieving a binary threshold and for whom performance is costly. *A* has low talent and, thus, no chance of reaching the threshold. *B* has medium talent and may be able to reach the threshold. *C* has high talent and can reach the threshold easily. *A* will likely realize that he cannot reach the threshold and will simply not bother to perform since performance is costly. For *B*, the threshold may create a goal that incentivizes her to commit more effort to the task, resulting in higher performance than if the threshold was not provided. *C*, however, can easily reach the threshold and will thus not be motivated to invest more effort in performing the task to achieve beyond the threshold, resulting in lower performance than if the threshold was not provided. Accordingly, thresholds can produce performance distortions that result in clustering or "piling up" around the threshold.[129] People are motivated to barely achieve the threshold but no more.[130] Clustering may be reduced, however, when the threshold is uncertain. If people do not know precisely where the threshold is set, they may be risk averse and perform better in an attempt to ensure satisfaction of the threshold.

A variety of empirical studies support these inferences. For example, ultramarathoners tend to cluster around significant performance measures like completing the race in under twenty-four or thirty hours.[131] Especially at the higher achievement end, some runners will tend to underperform because they are satisfied with meeting the threshold rather than expending more energy to get a better (but not necessarily rewarded) time.[132] This is also true for those who run the more reasonable distance of 26.2 miles, a cross section much closer demographically to the general population. In an analysis of almost 9.4 million marathon finishing times across nearly 7,000 marathons between the years 1970–2013, Eric Allen and colleagues find

---

128. George Wu et al., A Prospect Theory Model of Goal Behavior 1 (Apr. 22, 2008) (unpublished manuscript), *available at* http://faculty.chicagobooth.edu/george.wu/research/papers/wu%20heath%20larrick%20(prospect%20theory%20model%20of%20goal%20behavior).pdf.

129. *Id.* at 15–19.

130. *Id.*

131. Grant, *supra* note 125, at 11.

132. As Grant notes, "This is the ultimate irony of the Western States 100: in one of the toughest endurance races in the world, most finishers choose not to use up all the gas in the tank." *Id.* at 21.

massive piling-up effects.[133] Times just missing half-hour marks (such as 4:01) are observed far less often, and times just making half-hour marks (such as 3:59) are observed far more often than should be if the times were more normally distributed.[134]

All in all, we face a murky picture of the relationship between incentives and creativity. A series of studies suggests that rewards—particularly higher ones—can undermine creativity, but other studies indicate that carefully designed rewards and instructions can instead enhance creativity.

B. Incentives and Creativity in IP Research

In recent years, a handful of legal scholars have made reference to social-science studies finding that incentives can harm creativity. Some scholars have argued that, as a general matter, IP law's approach to incentives is incorrect. For example, Julie Cohen argues that copyright law plays little or no role in actually motivating creators. She writes:

> Everything we know about creativity and creative processes suggests that copyright plays very little role in motivating creative work. Creative people are much more apt to describe what they do as the product of desire, compulsion, or addiction, and to understand particular results as heavily influenced by cultural, intellectual, and emotional serendipity.[135]

To Cohen and others,[136] most copyright creators have sufficient intrinsic incentives to create, and additional copyright incentives are unnecessary and wasteful.

Other scholars go further and argue that, consistent with the research discussed above, IP law's incentives may actually undermine creativity.

---

133. Eric J. Allen et al., Reference-Dependent Preferences: Evidence from Marathon Runners 3, 9 (Dec. 30, 2013) (unpublished manuscript), *available at* http://faculty.chicagobooth.edu/devin.pope/research/pdf/Website_Marathons.pdf.

134. *Id.* at 3. Furthermore, the "excess mass" cannot fully be explained by the "extrinsic benefit" of qualifying for the Boston Marathon. *Id.* at 8, 18.

135. Julie E. Cohen, *Copyright as Property in the Post-Industrial Economy: A Research Agenda*, 2011 WIS. L. REV. 141, 143. Cohen goes on to propose that copyright should instead be used to "enable the provision of capital and organization so that creative work may be exploited," so that it "creates a foundation for predictability in the organization of cultural production, something particularly important in capital-intensive industries like film production." *Id.*

136. Relatedly, some scholars suggest that people will readily create in reliance on their intrinsic motivation, without regard to extrinsic motivations, such as IP-related incentives. *E.g.*, Yochai Benkler, *Coase's Penguin, or Linux and* The Nature of the Firm, 112 YALE L.J. 369, 426–34 (2002); Tushnet, *supra* note 90, at 513 (exploring "the ways in which the desire to create can be excessive, beyond rationality, and free from the need for economic incentive," and suggesting as a result that copyright law should not "treat[] creative activity as a product of economic incentives"); *see also* YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 92–99 (2006) (analyzing different models for motivation, including "intrinsic motivation").

For example, Diane Zimmerman asks legal scholars to wrestle with the legal implications of findings that "the promise of monetary or other extrinsic rewards for creative activities can actually diminish rather than enhance the likelihood that individuals will be induced to produce high-quality new work."[137] Eric Johnson suggests that, although there might be some exceptions, "[i]n general, the kind of creativity and innovation that benefits society as a whole is not in need of externally supplied incentives."[138] In reliance on this body of literature, Johnson speculates that patent and copyright laws might be counterproductive—or at best unnecessary—for individuals.[139] Similarly, Gregory Mandel worries that "law's ability to promote creativity not only may be limited, but could even be detrimental, to the extent it turns an artist's or inventor's internally motivated activity into one conducted for the copyright or patent prize."[140] Nonetheless, Mandel leaves open the possibility that IP laws might enhance creativity:

> To the extent intellectual property law is perceived as creating competition, constraint, or providing rewards for task (not creative) performance, the law may produce extrinsically motivated efforts that are less creative. To the extent, however, that intellectual property law is perceived as providing potential creators with a wide degree of autonomy and a reward for creative achievement, the law can produce intrinsic motivation that enhances creativity.[141]

To Zimmerman, Johnson, and Mandel, IP laws may be not only socially wasteful expenditures on creativity that would have been produced anyway; IP laws may actually be inhibiting the very creativity that they exist to promote.

Aside from Mandel's work and Johnson's intimation, there has been very little discussion in the legal literature of the possibility of carefully structuring creativity incentives to avoid these detrimental effects. Moreover, until now, no one has tested the implications of the way that IP law specifically structures incentives for creative production. This Article takes a first step in that direction, with regard to the protectability thresholds in intellectual property and the effect on creativity of varying them.

---

137. Diane Leenheer Zimmerman, *Copyrights as Incentives: Did We Just Imagine That?*, 12 THEORETICAL INQUIRIES L. 29, 43 (2011).

138. Eric E. Johnson, *Intellectual Property and the Incentive Fallacy*, 39 FLA. ST. U. L. REV. 623, 625 (2012).

139. *Id.* at 675–78.

140. Gregory N. Mandel, *To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity*, 86 NOTRE DAME L. REV. 1999, 2008 (2011).

141. *Id.* at 2012.

C. *Motivation for This Research*

Although the different creativity thresholds established by copyright and patent laws have received considerable attention, there has been relatively little discussion of whether the difference affects creators' behavior.[142] The creativity research described above provides some reasons for thinking that it does. One possibility, consistent with the claims of Parchomovsky and Stein and Miller, is that the higher creativity threshold in patent law provides a target that encourages creators to strive for creative solutions in order to meet the goal. Creators will have explicit knowledge of what is expected of them, and they will work to achieve it, whereas copyright law's low threshold may provide no strong motivation to be particularly creative.

Another possibility, in contrast, is suggested by Theresa Amabile's and Dan Ariely's work and the broader body of work on the negative effect of many—particularly high—extrinsic rewards on creativity.[143] Perhaps creators will be inordinately focused on the high target that patent law establishes, ultimately leading them to choke, while those subjected to copyright law's low threshold—or no incentive at all—will be able to relax and create without the additional anxiety of meeting some externally imposed benchmark.

Relatedly, the high threshold in patent law may distort performance relative to copyright law. Whereas creators subject to the copyright regime might adjust their effort smoothly and efficiently once they have exceeded

---

142. For one such discussion, see Parchomovsky & Stein, *supra* note 51, at 1510–12, 1528. Another exception is some interesting speculation in Gregory Mandel's work:

> Intriguingly, these results indicate that patent law's nonobviousness requirement may enhance creative efforts, while copyright's originality requirement could detract from them. In order to acquire a patent, an invention must not merely be novel in relation to the prior technology, but must measure a nonobvious advance over existing technology. The nonobviousness requirement thus mandates a certain level of creative achievement in order to secure a patent, making a patent a reward for a particularly creative achievement. To the extent that a potential inventor understands this, the inventor is likely to perceive a patent as a reward only for a creative accomplishment, and thus the patent system may enhance intrinsic motivation in this regard.
>
> The creativity requirement for a copyright, on the other hand, is famously low, requiring only that a work display a minimum amount of creativity. The Supreme Court has held that the requisite level of creativity "is extremely low; even a slight amount will suffice." To the extent that potential creators are aware of copyright's minimalist creativity standard, the copyright reward will be viewed more as simply providing a reward for task performance. The perception of a task performance reward produces only extrinsic motivation, rather than providing the desired internal desire to achieve a creative result, and may lead to a reduction in the creativity of copyright-related efforts.

Mandel, *supra* note 140, at 2012–13 (citations omitted) (quoting Feist Publ'ns, Inc., v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991)).

143. *See supra* section II(A)(2).

its very low threshold—which might appear to creators as nary a threshold at all—creators subject to the patent regime may cluster around the threshold. If creators are intrinsically motivated they may actually perform better with copyright law's negligible target. However, this effect ought not occur if there is some additional incentive for ever-better performance once a threshold is crossed.

These questions have not been directly addressed in the existing empirical literature, but they are important for the emerging discussion about how IP law can best encourage creativity. In the experiments described below, we attempt to understand how different kinds of creativity thresholds affect creators' behavior. Our goal is to test these issues across a range of different creativity tasks.

III. Experimental Tests of Creativity Thresholds

The following experiments involve various tasks for subjects to complete in order to win a $500 prize. The subjects' performance in the tasks was scored. For each of the experiments, the subjects were randomly assigned to one of five different threshold conditions that determined how the prize would be distributed. The experiments all used the same set of thresholds in order to test whether different kinds of creativity would be differentially affected by threshold structure. For brevity, we describe the five threshold conditions just once below.

Our goal in designing the different conditions is to model the creativity thresholds that are used in IP law. As discussed above,[144] copyright law applies a negligible threshold requiring that an author produce a minimally creative work to qualify for protection. Patent law has a much higher standard, limiting protection to inventions that are both novel and nonobvious to someone skilled in the relevant art. Our conditions reflect these differences in the magnitude of the threshold. In addition to testing the effects of different thresholds on subjects' creativity, we want to compare that performance to the performance of subjects who receive no incentive to be creative. This condition provides a baseline from which to assess the effects of different thresholds on creativity.

Our five conditions are as follows:

- *No Incentive* – Subjects were told that although their performance in the task would be scored, their score would not affect their chances to win the $500 prize. Instead, each subject would be assigned a lottery ticket, and the winner would be drawn at random.
- *Copyright* – Subjects were told that their performance on the task would be scored, and that for each point they received

144. *See supra* subpart I(B).

they would earn one lottery ticket for a random prize drawing. Accordingly, each subject who submitted a valid answer had a chance of winning the prize, but subjects who provided better answers had better chances to win.

- *Patent High* – Subjects were told that their performance on the task would be scored. Next, they were told that the subjects whose performance was in the top 5% of total scores would receive one lottery ticket for each point that they scored and that the lottery tickets would be entered into a random drawing for the prize. Subjects whose scores were below the top 5% would not receive lottery tickets.
- *Patent Mid* – Subjects were given the same instructions as for Patent High except the threshold was set at the top 25%.
- *Patent Low* – Subjects were given the same instructions as for Patent High except the threshold was set at the top 50%.

For each of the conditions, the subjects were provided with a hypothetical example that demonstrated how the lottery tickets would be distributed.

The provision of prizes in our experiments differs from those of other creativity and threshold experiments. The prize winner for the four IP-related conditions is determined by a lottery that relates task performance above the threshold with probability of winning. This method better simulates IP law's indirect rewards for creativity via the provision of exclusive rights that are more likely to prove valuable as the quality of the underlying creative work increases.[145] Unlike other creativity experiments in which a prize is awarded to the entry judged to be the best,[146] here we seek to model the probabilistic relationship between IP rights and monetary returns to the owner. To that end, our experiments employ a lottery or tournament style prize-distribution mechanism that is consistent with the way market value tends to be distributed in IP markets.[147] Our model

145. *See supra* text accompanying notes 15–17.

146. Christopher Buccafusco & Christopher Jon Sprigman, *The Creativity Effect*, 78 U. CHI. L. REV. 31, 37–39 (2011) [hereinafter Buccafusco & Sprigman, *Creativity Effect*]; Christopher Buccafusco & Christopher Jon Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1, 21–22 (2010); Christopher Jon Sprigman, Christopher Buccafusco & Zachary Burns, *What's a Name Worth?: Experimental Tests of the Value of Attribution in Intellectual Property*, 93 B.U. L. REV. 1389, 1405–09 (2013).

147. *See, e.g.*, Gideon Parchomovsky, *Publish or Perish*, 98 MICH. L. REV. 926, 926–27 (2000) (contemplating the patent system as a race to invent between competitors); Jennifer F. Reinganum, *The Timing of Innovation: Research, Development, and Diffusion*, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 849, 850–52 (Richard Schmalensee & Robert Willig eds., 1989) (same). We could run the experiments again using a different model of payouts, such as proportional payouts to each subject based on their performance. *Cf.* John P. Conley & Christopher S. Yoo, *Nonrivalry and Price Discrimination in Copyright Economics*, 157 U. PA. L. REV. 1801, 1804 (2009) (contemplating that many similar protected creations can coexist and be "imperfect substitutes" for one another).

assumes that IP rights play a gatekeeping function that tends to limit competition in a field only to those works that qualify for rights, and that within the category of those that qualify, the probability of marketplace success is directly—but not completely—related to the quality of the work.[148]

Additionally, we maintain the same total prize value in each condition: the winner of the lottery for each of the five conditions receives $500. Although this equivalence keeps the conditions symmetrical in terms of the value-per-subject payouts, it does create different marginal values for better scores in the Copyright and Patent conditions. In the Copyright condition, the value of additional creativity is linear and increasing—more and better answers yield higher chances to win. In the Patent conditions, however, the value of additional creativity is dichotomous: More and better answers are worth nothing until the subject reaches the threshold, and after that they are increasingly valuable. Thus, the marginal value of additional creativity in the Patent conditions relative to the Copyright condition has a very different valence depending on the location of a particular subject's solution on the creativity spectrum: Below the Patent threshold, additional creativity in a Patent condition is worth less than additional creativity in Copyright, but above the Patent threshold, additional creativity in a Patent condition is worth more than additional creativity in the Copyright condition because fewer subjects will be in the final lottery.

If subjects were able to calculate the expected value of their participation in such a way that it differed *ex ante* across conditions, it would have been necessary to adjust the prize value across the conditions to ensure that the expected value was the same across the conditions so as not to confound the threshold condition with the expected value of the prize. That said, subjects cannot calculate the expected value of their participation for at least two reasons: They do not know how many other subjects are participating, nor do they know the distribution of scores that subjects will have. Because subjects do not know other subjects' scores, there is no way for subjects to know both how high they will have to score to hit their condition's threshold and how many lottery tickets there will be in total (both of which affect their chances of winning the prize).[149] We think that this indeterminacy models the patent and copyright systems and the subsequent payoffs that rightholders might achieve in the marketplace.[150] In other words, the key difference between the Patent and Copyright conditions is not the total expected payoff, but the way in which the payoff

148. These assumptions involve a number of simplifications of competition in the real world, but they are required in order to explain the experimental setup to subjects.

149. The best they might do is build a rudimentary qualitative model to approximate whether they might perform well and meet the threshold, whether due to optimism, confidence, or lack thereof, issues as to which we enquire in our experiments. *See infra* subparts III(A)–(D).

150. *See supra* text accompanying notes 145–148.

is distributed. The Patent and Copyright conditions subject the same total expected payoff to different risk profiles. The risk profiles are created by the differing thresholds.

Finally, the structure of the thresholds in our studies differs from many of those in the prevailing literature because they are not purely binary. Although there is a discontinuity between those who reach the threshold and those who fail to reach the threshold, those who do reach it are not treated identically. Better performance above the threshold is rewarded more than weaker performance above the threshold. Accordingly, we expect not to see a significant diminution in effort by high talent individuals who can easily clear the threshold, because they stand to gain further advantage by increased performance.

A. Experiment 1 – Computational Creativity

In Experiment 1, we seek to measure the effects of different kinds of creativity thresholds on subjects' responses to a "computational" creativity task. The task involved mathematical reasoning, but it was difficult enough (and NP-complete)[151] that participants would not be able to compute the solution in any straightforward or complete way in the time given. Instead, they would have to rely on some sort of heuristic to approximate the optimal answer. The task presented an opportunity for creativity in constructing a heuristic that would yield answers close to the optimum. Our goal in this task was to model aspects of information aggregation and convergent thinking that play significant roles in intellectual discovery and invention.[152]

To test the effects of thresholds on this sort of creativity, we adapted a variant of the classic knapsack problem, a combinatorial optimization problem that derives its name from one of the ways in which it is typically structured—as a game featuring a player who must fill a knapsack of fixed weight capacity with items of the maximum value chosen from a menu of items, each having a specific value and weight.[153] Our version of the

151. NP-complete problems are those for which there is no known efficient (polynomial time) way to find a solution (although the solution can be verified quickly once it is found). In fact, the time required to solve the problem increases substantially as the size of the problem grows. Because of the complexity of NP-complete problems, algorithms that tackle these problems typically use heuristics or approximation to "solve" them. *See generally* MICHAEL SIPSER, INTRODUCTION TO THE THEORY OF COMPUTATION 299–310 (3d ed. 2012) (defining NP-completeness and explaining the complexities in solving such problems).

152. *See* Gallini & Scotchmer, *supra* note 15, at 56–58 (discussing information aggregation problems in the invention process).

153. *See generally* HANS KELLERER ET AL., KNAPSACK PROBLEMS 1–9 (2004) (describing the knapsack problem and its mathematical implications). Other scholars have used knapsack problems to study innovation and incentives. *See* Deborah Meloso et al., *Promoting Intellectual Discovery: Patents Versus Markets*, 323 SCIENCE 1335, 1336–37 (2009) (explaining a similar study that utilized a knapsack problem to test patent innovation).

problem was based on the popular "Oregon Trail" video game of the 1980s,[154] and featured not a knapsack, but a covered wagon that players were asked to fill. The wagon had a weight limit, and players were presented with a menu of items, each having a specific value and weight. Because one cannot determine whether a given item is in the optimal solution until one knows the solution,[155] the game requires more than simple mathematics. Moreover, subjects were limited to 180 seconds to submit a solution, which meant that at the level of difficulty presented by the problem, players would almost certainly be unable to compute the optimal combination of items. They were forced, instead, to rely on some heuristic to approach the optimum solution within the time allotted. One such heuristic, for example, would be to estimate the approximate ratios between value and weight, and attempt to fill the wagon with the items presenting the highest ratio.[156] Players using this heuristic would approach, but would only very rarely achieve, the optimum solution.

Subjects were recruited online using Amazon's Mechanical Turk subject recruitment service.[157] Recruitment was restricted to those in the United States. Once subjects signed up to take the experiment, they were directed to the Qualtrics survey website. Subjects were apprised of the rules of the game and given an opportunity to practice on a simplified example. After receiving these instructions, subjects were randomly assigned to one of the five different conditions based on creativity thresholds described above.

We recruited 1,003 subjects to participate in the experiment. The sample had a mean age of 31.2 (SD = 10.11) and was 36% female. They were fairly well educated, 88.3% reporting having at least some college education. Self-reported math skills were above average; 88.7% of respondents said they were "Okay" at math (the midpoint of the scale) or better.

Subjects were paid $1 to participate and were given a chance to win a $500 prize. Subjects were excluded from the sample if their Mechanical Turk worker ID matched one that previously had been used in a pilot version of this study or if the subject believed that she had participated in the pilot study.[158] In addition, subjects were excluded from the analysis if

---

154. *See* Jessica Lussenhop, *Oregon Trail: How Three Minnesotans Forged its Path*, CITY PAGES, Jan. 19, 2011, http://www.citypages.com/2011-01-19/news/oregon-trail-how-three-minnesotans-forged-its-path/ (detailing the history of the Oregon Trail game and its widespread popularity).

155. Meloso et al., *supra* note 153, at 1337.

156. Another plausible heuristic would involve adding the most valuable item currently available until doing so would result in an overweight wagon and then adding the next most valuable item until doing so would result in an overweight wagon, and so forth.

157. *See generally* Winter Mason & Siddharth Suri, *Conducting Behavioral Research on Amazon's Mechanical Turk*, 44 BEHAV. RES. METHODS 1 (2012) (explaining the functionality of Amazon's Mechanical Turk research platform).

158. First, we used an identified method to exclude workers who had previously participated

their responses to follow-up questions indicated that they had not paid attention to the experiment.[159] The likelihood of being excluded due to inattention was not significantly correlated with the different conditions. This left us with 986 subjects in the sample.

We excluded almost 200 more subjects, as discussed below, for not complying with the rules governing the task. The remaining sample of 789 had a mean age of 30.9 (SD = 9.79) and was 38% female. They were fairly well educated, 89% reporting having at least some college education. Self-reported math skills were again above average; 87.8% of respondents said they were "Okay" at math (the midpoint of the scale) or better. The participants were distributed across conditions as follows:

Table 1

	N (before exclusions)	Excluded for Inattention/ Previous Participation	Excluded for Overweight	Analyzed *N*
No Incentive	201	6	88	107
Copyright	202	1	39	162
Patent High	204	5	21	177
Patent Mid	201	1	21	177
Patent Low	195	5	24	166
Total	**1003**	**18**	**193**	**789**

We analyzed two separate metrics of subjects' performance on the wagon task. Our first measure of performance considers the number of subjects who exceeded the wagon's weight limit. Subjects were told that they would receive zero points if they exceeded the weight limit, so doing so constitutes poorer task performance. Participants were significantly

in earlier iterations by identifying their worker ID and disallowing access to those in a previous sample. *See* Eyal Peer et al., Selectively Recruiting Participants from Amazon's Mechanical Turk Using Qualtrics (Nov. 9, 2012) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2100631 (describing a method to use Qual-trics, rather than Mechanical Turk, to exclude workers who participated in a previous study). We further asked how many of the 1,003 total participants felt like they had taken the survey before; four responded in the positive and were excluded.

159. *See* Adam W. Meade & S. Bartholomew Craig, *Identifying Careless Responses in Survey Data*, 17 PSYCHOL. METHOD 437, 452 (2012) (finding that these self-reports correlate with other attention filters). Finally, we asked how much attention the participant paid to the survey and "In your honest opinion, should we use your data in our analyses in this study?" In our remaining sample, the two questions were correlated at $r = .068$. Of the remaining sample, 982 responded that we should use their data, of whom 98.7% reported they gave the study "most of" or "all of" their attention.

more likely to go overweight in the No Incentive condition (45.1%) than either the Copyright (19.4%) or the Patent (11.3%) conditions.[160] Furthermore, those in the Copyright condition were significantly more likely to go overweight than those in the Patent conditions.[161] There were no significant differences between the various Patent thresholds. These results indicate that subjects in the Patent conditions performed better than did subjects in the Copyright condition, and that subjects in both the Patent and Copyright conditions outperformed subjects in the No Incentive condition. Relative to the Patent conditions, subjects in the No Incentive and Copyright conditions were likely trying less hard or paying less attention to the task.

Our second measure of performance compared mean wagon value across the conditions. Because subjects who went overweight received zero points, including them in this analysis would bias downward those conditions with a disproportionate number of overweight wagons. Accordingly, they were excluded from this analysis. The remaining 789 participants were analyzed for their performance on the task. The best possible solution for the task is 684 (possible with a few different combinations of items). The data on subjects' responses appears below.

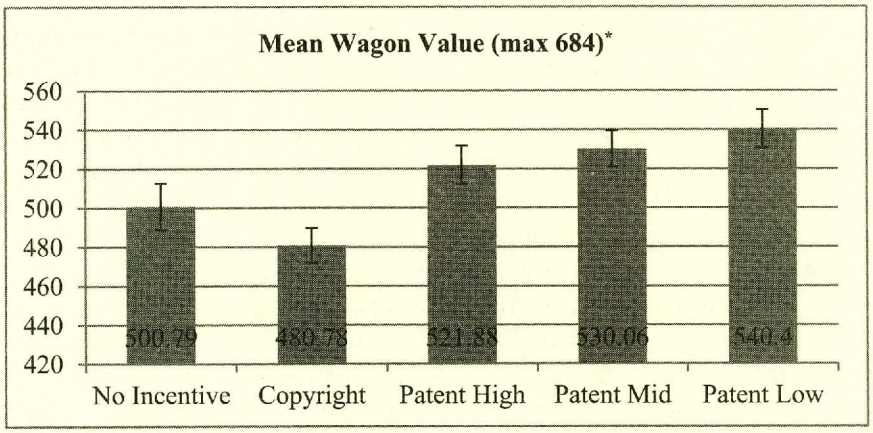
Table 2

<table>
<tr><th>Max Possible Value: 684</th><th>Wagon Value (SD)</th><th>No Incentive/ Copyright Comparison</th><th>Copyright/Patent Comparisons</th><th>No Incentive/Pooled Patent Comparison</th></tr>
<tr><td>No Incentive</td><td>500.79 (123.08)</td><td rowspan="2">$p = .885$, n.s.</td><td></td><td></td></tr>
<tr><td>Copyright</td><td>480.78 (113.45)</td><td rowspan="3">All $ps \leq .023$</td><td></td></tr>
<tr><td>Patent High</td><td>521.88 (130.23)</td><td></td><td rowspan="3">$p = .069$</td></tr>
<tr><td>Patent Mid</td><td>530.06 (123.13)</td><td></td><td></td></tr>
<tr><td>Patent Low</td><td>540.40 (125.22)</td><td></td><td></td></tr>
<tr><td colspan="5">All p values are SPSS-adjusted Sidak ps. Bonferroni corrections did not differ significantly.</td></tr>
</table>

160. All Sidak adjusted $ps \leq .024$. An omnibus F-test revealed no differences between individual patent conditions, except where discussed.

161. Omnibus $F(2,979) = 59.40$, $p < .0001$. All post-hoc test $ps \leq .025$ using Sidak corrections.

Chart 1



*Error bars are standard errors.

As outlined in the above table, post-hoc analyses indicate that subjects in each of the Patent conditions performed significantly better than those in the Copyright condition.[162] Subjects in the Copyright condition did not perform significantly differently than those in the No Incentive condition. There were no statistically significant differences between the Patent conditions.

Because performance in each of the Patent conditions did not differ significantly, we also look at comparisons when the Patent conditions are pooled.[163] Those in the pooled Patent conditions performed the best ($M = 530.58$, $SD = 126.79$), with No Incentive performing second-best (500.80) and Copyright performing the worst (480.78).[164] Post-hoc tests with Sidak corrections reveal the Copyright vs. pooled Patent differ significantly ($p < .001$) and No Incentive vs. Patent differ marginally ($p = .069$).[165]

Because the different Patent levels did not affect performance significantly in any of the studies reported in this Article, we can look at the difference between subjects' performance in the Copyright condition versus the Patent Mid condition as a representative comparison. Participants in the

---

162. Omnibus $F(4,786) = 10.99, p < .0001$.

163. There was a slight but non-significant trend that higher thresholds induced worse performance (Patent High M = 521.88, Patent Mid M = 530.06, Patent Low M = 540.40).

164. Omnibus $F(2,786) = 10.99, p < .0001$.

165. The corrections used in the analysis are intended to control for the use of multiple conditions. Because it is more likely that a significant result will appear due to chance when more conditions are used, these corrections require a higher degree of significance to establish a meaningful result.

Patent Mid condition significantly outperformed those in the Copyright condition (Patent Mid M = 530.06, Copyright M = 480.78, $t = 3.821$, $p < .001$).

In sum, we find evidence that subjects in the Patent conditions outperform those in the Copyright condition. Those in the No Incentive condition perform similarly to those in the Copyright condition and worse than those in the Patent conditions. Interestingly, we find no significant differences between the various Patent thresholds. It seems that some non-negligible threshold will motivate increased performance on this non-algorithmic convergent-thinking task.

We should note that our experimental design tends to understate—perhaps significantly—the differences between the No Incentive, Copyright, and Patent conditions. This is because, as we noted above, subjects were significantly more likely to produce overweight wagons in the No Incentive condition (45.1%) versus Copyright (19.4%) and (even more markedly) Patent (11.3%). We did not assign a value to overweight wagons, instead, we excluded them from our second-stage data analysis entirely. If we had assigned some value to these overweight wagons (presumably zero), we would see larger differences between the conditions.

In order to better understand why the higher threshold was producing better results, we asked several questions when the task was over:

- *How likely do you think it is that you will be the winner of the $500 prize?*
- *How likely do you think it is that your answer will be in the top X% and get you into the lottery? (Patent conditions only)*
- *How motivated were you to score well on the game?*
- *How much fun did you think the game was to play?*

Each of these was significantly correlated with performance.[166] We also asked participants how many other people they believed were in the competition. One possible response might be to perform better as a function of there being more people in the competition to overcome, and yet, on the other hand, subjects might perform worse out of a fear of futility.[167] Performance on the task was significantly correlated with beliefs about how many others were also in the task,[168] but these beliefs did not differ across conditions.[169] Accordingly, it does not appear as though the

166. All $rs \geq .09$, all $ps \leq .012$.

167. *See* Stephen M. Garcia & Avishalom Tor, *The* N-*Effect: More Competitors, Less Competition*, 20 PSYCHOL. SCI. 871, 871 (2009) (finding that increasing the number of competitors can decrease competitors' motivation).

168. Spearman $r = .087$, $p = .015$.

169. Kruskal–Wallis $H = 5.213$, 4 d.f., $p = .266$.

results are driven by differing assumptions about the size of the competitive pool.

We also measured competitiveness as a possible mediator for the differences in performance between conditions. We hypothesized that the Patent conditions might be promoting people to be more competitive because there were fewer slots available in the lottery, and thus more likelihood to win if a subject were to make it into the lottery pool. Competitiveness was assessed with four items, adapted from previous research on the issue.[170] Our competitiveness measure failed to pick up any significant differences between subjects in the different conditions.[171] Though it is possible to have mediation without association between the variables,[172] the difference in performance between the Patent Mid and Copyright conditions was not a result of differences in competitiveness.[173]

The most obvious explanation for the increased performance in the Patent conditions is that subjects perceive improvement in an answer to have a higher value than they do in the other conditions. While this is true once subjects exceed the threshold, it is not necessarily true as a general matter. That is, if a subject exceeds the threshold in the Patent conditions, each increment of improvement in an answer is worth more than the same improvement would be worth in Copyright. But improvements in answers below the Patent threshold are worth less than those in Copyright. It is possible that the subjects in the Patent conditions assumed, optimistically,[174]

---

170. *See* John Houston et al., *Revising the Competitiveness Index Using Factor Analysis*, 90 PSYCHOL. REPORTS 31, 33 tbl.1 (2002). The four items were selected from the "Enjoyment of Competition" subscale, as the other subscale, "Contentiousness" does not apply to competitiveness in the current context. The selected items were "I am a competitive individual," "I try to avoid competing with others," "I find competitive situations unpleasant," and "I enjoy competing against an opponent." All responses were on a five-point Likert scale, with points labeled "Strongly Disagree," "Disagree," "Neither Agree nor Disagree," "Agree," and "Strongly Agree." The middle two items were reverse coded.

Among all participants not excluded for being overweight or other reason discussed above, the four items were highly correlated (Chronbach's $\alpha = .919$; all bivariate rs $> .676$, all ps $< .0001$), and so the items were averaged into a composite competitiveness measure. The overall mean competitiveness in the sample was 3.57, or just above the midpoint of the scale, indicating a slight taste for competition.

171. An omnibus F-test indicated competitiveness did not differ by condition ($F(2,786) = 1.26$, n.s.). This is not to say that competitiveness was not a useful measure. The index was correlated with performance at $r = .108$ ($p = .002$). Furthermore, the index correlated positively with other measures, such as likelihood of winning, likelihood of getting into the lottery, self-reported motivation, and self-reported fun with the task (all rs $\leq .14$, all ps $< .001$). However, the different conditions do not induce the differences in performance via competitiveness.

172. Andrew F. Hayes, *Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium*, 76 COMM. MONOGRAPHS 408, 413 (2009).

173. Using a bootstrap model to estimate the indirect effect, the 95% confidence interval included 0 ($\beta = .077$, 95% CI: [−3.471, 4.015]), indicating that competitiveness did not mediate the effect of condition on performance.

174. Optimism among creators is consistent with previous research. *See* Buccafusco & Sprigman, *Creativity Effect*, *supra* note 146, at 31 (explaining that "creators of works value their

that they would clear the threshold and were competing in the part of the distribution where improvements in answers were especially valuable.[175]

Our results from Experiment 1 are illuminating and suggestive. In general, the existence of some threshold for entry into a prize lottery had a positive effect on subjects' performance. Subjects in the Copyright condition produced solutions that failed to satisfy the rules of the task significantly more often than did those in the Patent conditions. Moreover, when we compare only those solutions that met the rules of the task, Copyright subjects still performed significantly worse. These results suggest that the negligible threshold in the Copyright condition caused subjects to be less motivated or to pay less attention to the task than did the higher thresholds in the Patent conditions. Interestingly, however, we detected no significant difference in performance among the various Patent conditions.

B. Experiment 2 – Verbal Creativity

In Experiment 1, we sought to measure the effects of different levels of creativity thresholds on subjects' responses to a computational convergent thinking creativity task. As addressed in Part II, however, notions of creativity vary widely in different situations. Accordingly, we wanted to test whether our results with a computational creativity task would hold for a task that involved a different kind of creative behavior. The following experiment tested the effects of different thresholds on a verbal divergent-thinking creativity task.

In order to test the effects of thresholds on verbal creativity, we adapted a creativity game that has long been used by the Odyssey of the Mind organization.[176] The task involved rapidly generating a list of words that bear an indirect relationship with some target word, usually in the form of a pun. In our task, subjects were asked to come up with a list of "keys," and they were rewarded for answers that were judged to be creative. For example, "house key" would not be considered a creative answer, while "Keyshawn Johnson," "monkey," "keynote speech," or "John Maynard Keynes" would be considered creative. The ability to generate unexpected or punning uses of a word is a significant feature of verbal or linguistic creativity.[177] Also, unlike the Wagon task in Experiment 1, this task

---

creations substantially more than do both potential purchasers of their works and mere owners of the works").

175. Even though we did not detect any differences in self-reported motivation between the conditions, subjects might nonetheless have experienced different levels of motivation that they did not or could not accurately report.

176. *See Learn More!*, ODYSSEY MIND, http://www.odysseyofthemind.com (describ-ing various problem designs used to teach "creative problem-solving methods").

177. *See, e.g.*, JAMES JOYCE, ULYSSES (First Vintage Int'l ed. 1990) (exemplifying significant literary usage of puns).

involves divergent thinking. Rather than offering a single right answer, divergent thinking tasks are open-ended and enable subjects to generate a multitude of novel relationships.[178]

Again using computers connected to the Qualtrics survey website, subjects were told that they would be playing a game that involved verbal creativity. As with Experiment 1, subjects were paid $1 for participating in the task, and they were told that they would have a chance to win a $500 prize. Subjects were told that they would be asked to list words or phrases that fit a given theme, that they would receive one point for creative answers, and that they would receive zero points for standard answers. Subjects were told that examples of creative and standard answers would be given to them.

After they acknowledged that they understood the directions, all of the subjects were directed to the creativity task. Subjects were given the following instructions:

In three minutes, provide as many examples of "keys" as you can.

Creative Answer: "monkey" = 1 point

Standard Answer: "house key" = 0 points

Subjects typed their answers into the survey program. Following the task, subjects were asked to complete a series of demographic and follow-up questions.

We recruited 1,005 participants through Amazon's Mechanical Turk service. As before, recruitment was restricted to those in the United States. Subjects were told that they would receive $1 for performing a creativity task and that they would be eligible to win a $500 prize. As with Experiment 1, workers who had taken other studies in this Article were disallowed from participating. Of those remaining, 55 reported we should not use their data. Finally, we used JavaScript to limit some of the behaviors available to participants. For example, we did not want participants to open a new browser window and search terms that include "key," so once the round began, the study automatically advanced if the participant clicked off of the task window. Subjects were told about this rule and instructed not to click off the task window. We excluded 155 participants for violating this rule. The number of excluded participants did not differ by condition.

178. *See supra* text accompanying notes 74–78; *see also* Runco & Okuda, *supra* note 77, at 217 (finding that divergent thinking incorporates both problem solving and problem discovery).

The remaining participants were distributed as follows:

Table 3

	N (before exclusions)	Excluded for Inattention/ Previous Participation	Excluded for Clicking off Task	Analyzed *N*
No Incentive	198	11	27	160
Copyright	201	10	33	158
Patent High	203	14	26	163
Patent Mid	201	10	41	150
Patent Low	202	10	28	164
Total	**1005**	**55**	**155**	**795**

In order to assess the creativity of responses, the subjects' responses were standardized and then rated. First, every entry was standardized by two independent raters and ties were broken by a third, so that spelling, plurals, and word forms were consistent. This standardization produced 737 unique answers. Next, we created a task (excluding workers who generated the answers) on Amazon's Mechanical Turk service advertised as a "Rating Task."[179] Workers were first exposed to the prompt given to the participants who generated the answers, and then they were given two examples of both creative and standard answers. Each worker then evaluated 40 of the unique entries, using their own intuitions to produce the ratings,[180] responding "Creative," "Standard," or "I'm not familiar with this." Raters did not generally use "I'm not familiar with this," the largest percentage being 29.7% for "paracentric key." Any answer receiving more than 50% of total votes as "Creative" was tallied as creative. Each answer was rated between 24 and 56 times, with the average number of times being 48.2.[181] The raters were reasonably consistent with each other. Of the answers, 79.5% had vote ratios of at least 2:1 in the direction of the final rating (for example, "whiskey" received 44 creative votes, 5 standard votes, and 0 "I'm not familiar with this" votes and was thus rated as creative). Of answers in the middle tercile of vote ratios (those with vote ratios of less than 2:1), 47.1% were voted creative, indicating no bias towards standard or

179. Workers were paid $0.50 for the task.

180. The rating system used here is similar to those employed in the Consensual Assessment Technique. *See supra* text accompanying notes 72–73.

181. Standard deviation is 6.19.

creative on answers about which the raters were in relatively less agreement.

The mean results are displayed below.

Table 4

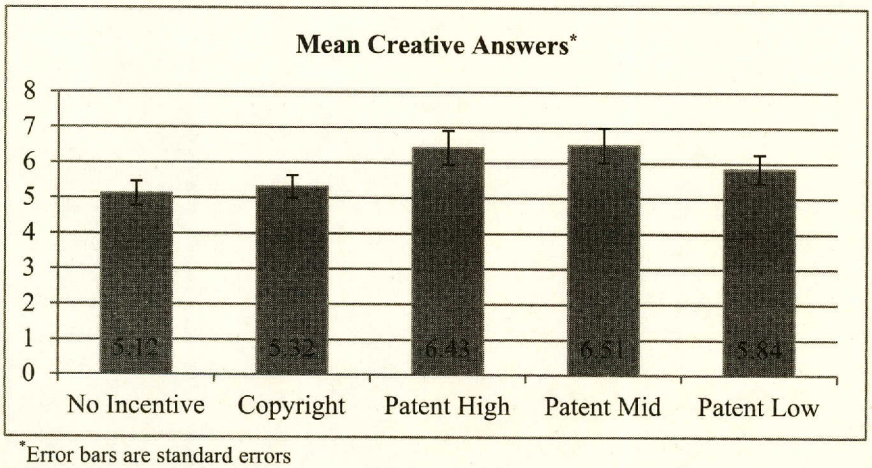
	Total Answers	Creative Answers	Standard Answers
No Incentive	9.36	5.12	4.24
Copyright	8.54	5.32	3.22
Patent High	9.14	6.43	2.71
Patent Mid	9.10	6.51	2.59
Patent Low	9.01	5.84	3.18
All Patents Pooled	9.08	6.25	2.83

In general, subjects in the various Patent conditions provided more creative answers than did subjects in the Copyright condition. The data are fairly consistent with the previous studies reported, as well as an unreported pilot study: Copyright and No Incentive are similar, and induce worse performance than the Patent conditions (which all perform similarly).

Table 5

<table>
<tr><th></th><th>Creative Answers</th><th>No Incentive/ Copyright Comparison</th><th>Copyright/ Patent Comparisons</th><th>No Incentive/ Pooled Patent Comparison</th></tr>
<tr><td>No Incentive</td><td>5.12 (4.42)</td><td rowspan="2">$p = 1$, n.s.</td><td></td><td></td></tr>
<tr><td>Copyright</td><td>5.32 (3.79)</td><td rowspan="3">All ps n.s.</td><td></td></tr>
<tr><td>Patent High</td><td>6.43 (6.08)</td><td></td><td rowspan="3">$p = .051$</td></tr>
<tr><td>Patent Mid</td><td>6.51 (5.99)</td><td></td><td></td></tr>
<tr><td>Patent Low</td><td>5.84 (5.19)</td><td></td><td></td></tr>
<tr><td colspan="5">All p values are SPSS-adjusted Sidak ps. Bonferroni corrections did not differ significantly.</td></tr>
</table>

Chart 2



*Error bars are standard errors

When we compare all of the conditions using full corrections for significance, post-hoc analyses do not indicate differences in performance at standard statistical levels.[182] Subjects in the Copyright condition did not perform significantly differently than those in the No Incentive condition. Because performance in each of the Patent conditions did not differ significantly, we also look at comparisons when the Patent conditions are pooled. Those in the pooled Patent conditions performed the best (M = 6.25, SD = 5.76), with Copyright performing second-best (5.32) and No Incentive performing the worst (5.12).[183] Post-hoc tests with Sidak corrections reveal the No Incentive vs. pooled Patent differed marginally (p = .051) and Copyright vs. pooled Patent differed somewhat (p = .147). Copyright and No Incentive did not differ.

If we look at the representative comparison between the Copyright and Patent Mid conditions, those in the Patent Mid condition produced no more *total* answers than those in the Copyright condition (difference = .56, t = .993, p = .321). They did, however, produce a significantly greater number of *creative* answers (difference = 1.19, t = 2.04, p = .042). These results suggest that the establishment of some creative threshold positively affects subjects' performance on a verbal creativity task. When creative answers are incentivized by a threshold that conditions a prize on achieving the threshold, subjects tend to provide more of them.

Responses to the demographic questions revealed no significant differences based on reported age or gender. Both education level and self-

182. Omnibus $F(4,795) = 2.32$, $p = .056$.
183. Omnibus $F(2,795) = 3.83$, $p = .022$.

reported verbal ability were significantly correlated with creative answer generation on the task but were equally represented across conditions.

We again assessed competitiveness using the same items as in Experiment 1 on computational creativity. Competitiveness was correlated with the production of creative answers ($r = .073$, $p = .039$). However, there were no differences in competitiveness across conditions.

We asked participants their perceived likelihood of winning on a six-point Likert scale.[184] Participants were generally pessimistic about their chances,[185] although perceived likelihood of winning was correlated with generation of creative answers ($r = .251$, $p < .0001$). We also asked those in the Patent conditions how likely they thought they would be to exceed the threshold and get into the lottery. Participants in the Patent conditions were slightly more optimistic about clearing the threshold than winning,[186] and this was again correlated with how many creative answers participants generated ($r = .364$, $p < .0001$).

These variables could help us assess the psychological mechanism that is responsible for the performance differences between conditions. For example, do any of the conditions induce differential beliefs about the likelihood of winning, which in turn produces better performance? In order to assess this, we constructed several mediation models.[187] We used the bootstrap model of Preacher and Hayes[188] to estimate (separately) the indirect effect of both likelihood of winning and probability of surpassing the threshold on production of creative answers based on 10,000 bootstrap samples. According to the simulations, the indirect effects of likelihood of winning and probability of surpassing the threshold between any of the conditions failed to reach significance. That is, according to the mediation models, the differences in production of creative answers described above do not operate through the mediating influence of either perceived likelihood of winning or perceived likelihood of surpassing the threshold. If anything, the process is working in the other direction. For example, the

184. The categories were Very Unlikely, Unlikely, Somewhat Unlikely, Somewhat Likely, Likely, and Very Likely.

185. The mean response was 2.10 (Unlikely); 86.2% responded Somewhat Unlikely or below.

186. The mean response was 2.61 (between Unlikely and Somewhat Unlikely).

187. Mediation is a statistical tool used to identify a third variable that explains the relationship between the independent and dependent variables. In our experiment, we tested to see whether differences in performance by condition could be explained by a more complex process: specifically, that the conditioning induced different expectations of winning, which in turn induced differential performance.

188. Kristopher J. Preacher & Andrew F. Hayes, *SPSS and SAS Procedures for Estimating Indirect Effects in Simple Mediation Models*, 36 BEHAV. RES. METHODS INSTRUMENTS & COMPUTERS 717, 721–22 (2004). This method is preferred to the traditional one proposed by Reuben M. Baron & David A. Kenny, *The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations*, 51 J. PERSONALITY & SOC. PSYCHOL. 1173, 1174–81 (1986), as it does not rely on the assumption that the sampling distribution of the mediation effect is normal.

differences in assessment of win likelihood between the Copyright and Patent Mid conditions are mediated by differences in performance on the task.[189] That is, the difference in performance drives expectations of winning, not vice versa.

In general, our test of the effects of thresholds on verbal divergent creativity aligns with the results of our test of computational convergent creativity in Experiment 1. In both experiments, the existence of some threshold for entry into a prize lottery produced more creative answers when compared to a condition where subjects would always be entered into the lottery. Our attempts to determine the psychological mechanism responsible for this improvement are, however, inconclusive at this stage. Our data suggests that a high threshold may have a stronger impact on verbal creativity than a lower threshold, but more work is needed to test whether and why this is the case. It seems that the existence of some threshold rather than no threshold generates more verbal creativity.

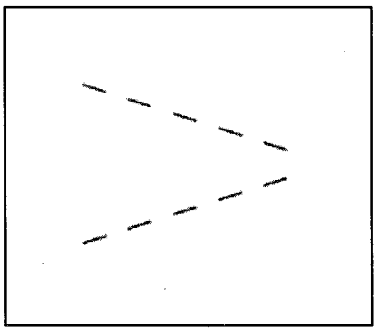
C. Experiment 3 – Figural Creativity

In Experiment 3, we continued to test the effects of creativity thresholds on divergent thinking, although this time the task involved visual or figural creativity rather than verbal creativity. Here, we adapted a series of stimuli that have been repeatedly used in creativity research.[190] Subjects were shown a simple black and white figure (see Figure 1), and they were given three minutes to name as many things as it could be. This task was then repeated with two additional stimuli. Subjects were told that they would play three separate creativity games in which they would be shown pictures and asked to describe as many things as the pictures could be. Subjects were told that the creativity of their answers would be judged and that they would receive a cumulative score between 0–100 based on their overall creativity.

189. $\beta = .10$ 95% CI: [.0099, .2328].

190. *See, e.g.*, Mark A. Runco, *Flexibility and Originality in Children's Divergent Thinking*, 120 J. PSYCHOL. 345, 346–47, 351 (1986) (using "open-ended problems" involving "ambiguous figural stimuli" to test the creative flexibility of children).

Figure 1: Sample Stimulus from Experiment 3



Divergent-thinking tasks such as this one are intended to measure a variety of aspects of creative behavior, including subjects' ability to generate many original or creative solutions to an open-ended prompt. The skills associated with divergent thinking about images, however, might be different from those associated with thinking about words. Since IP law covers manifold kinds of creative output, we incorporated a task that matched other key areas of creativity. A figural task like this aligns with the kinds of tasks that are specifically important to many fields governed by IP regimes, including product design; mechanical engineering; and the creation of pictorial, graphic, and sculptural works.

As with the previous experiments, subjects were recruited via Amazon's Mechanical Turk and directed to Qualtrics to complete the study. Again, recruitment was restricted to those in the United States. In total, 1,007 subjects completed the study. Subjects were placed into the same five threshold conditions discussed above.

Participants were shown three different figures sequentially and asked to generate as many ideas in 180 seconds about what each figure could be. Creativity Testing Services (CTS) scored the task according to traditional indices of fluency (overall count of responses provided),[191] originality (answers not commonly provided by other participants in the sample),[192] and flexibility (number of different lexical categories that responses fit).[193]

---

191. Fluency was measured as follows: Subjects' answers that were abbreviated or incoherent (after a spell-check procedure was done) were removed from their fluency count. After applying that filter, fluency was measured based on the sum of responses given.

192. Once responses were corrected for typos and spelling errors, each response was standardized to remove subtle redundancies. For example, "a coin" was standardized to "coin." The standardized answers, together with how frequently each was given, provided a count of the most commonly given responses, which in turn, determined originality scoring. The originality scoring procedure was that the top 10% of most commonly given responses were assigned to a category of "unoriginal," and all responses not so deemed to be "unoriginal" were given a point for originality. Each subject then received an originality score, as per CTS procedure, by

Forty-six participants were removed from analysis at their own suggestion. The mean results based on the ratings of the answers given by the remaining 961 participants are displayed below.[194]

Table 6

	Figure 1	Figure 2	Figure 3
Analyzed *N*	960	944	944
Total Unique Standardized Responses	1553	1872	1387
Total Lexical Categories	10	8	7
Fluency Mean	7.459	6.831	7.041
Originality Mean	2.275	2.151	2.244
Flexibility Mean	4.303	3.756	3.581

By measuring the number of creative answers per second, we can normalize the creative output with respect to time spent on the task.[195] Time spent on the task highly correlated with the total creative answers produced in a given task (all *r*s $\geq$ .439), but time spent on the task did not differ across conditions.

summing the originality points of that subject's answers.

193. The standardized responses used for originality scoring, see *supra* note 192, were also used to assign them to lexical categories established by prior samples that used the same figural tasks. These lexical categories provide general themes of subject responses and were developed to capture all possible responses provided by participants. The variety of categories in which a subject's answers fall provides insight on the subject's cognitive shifts throughout her ideational process. Once responses have been assigned categorical attributes, the numbers of unique categories are then summed for each subject, resulting in a flexibility score for each subject.

194. Note that not all participants completed all three figure tasks.

195. It might be the case that two participants who have the same productivity might have different costs of time, meaning that some do not persist, even though they would do equally well. We test for this by standardizing over time.

Table 7

	Analyzed *N*	Average Fluency	Average Originality	Average Flexibility	Average Originality per Minute
No Incentive	193	7.10	2.14	3.97	1.06
Copyright	195	7.54	2.43	4.02	1.16
Patent High	191	7.55	2.32	4.07	1.07
Patent Mid	193	6.89	2.11	3.78	1.07
Patent Low	189	7.62	2.51	4.03	1.26
All Patents Pooled	573	7.34	2.30	3.97	1.13
Averages are across all 3 tasks.					

Planned contrasts revealed the following results:[196]

Table 8

<table>
<tr><th></th><th>Creative Answers</th><th>No Incentive/ Copyright Comparison</th><th>Copyright/ Patent Comparisons</th><th>No Incentive/ Pooled Patent Comparison</th></tr>
<tr><td>No Incentive</td><td>2.14 (1.97)</td><td rowspan="2">t (956) = 1.29
p = .198, n.s.</td><td></td><td></td></tr>
<tr><td>Copyright</td><td>2.43 (2.18)</td><td rowspan="3">All ts ≤ 1.42
All ps n.s.</td><td></td></tr>
<tr><td>Patent High</td><td>2.32 (2.30)</td><td></td><td rowspan="3">t (956) = .951
p = .342, n.s.</td></tr>
<tr><td>Patent Mid</td><td>2.11 (2.22)</td><td></td></tr>
<tr><td>Patent Low</td><td>2.51 (2.30)</td><td></td><td></td></tr>
<tr><td>All Rules Pooled</td><td>2.30 (2.20)</td><td colspan="3">No Incentive vs. All Rules Pooled
t (956) = 1.14, p = .253 n.s.</td></tr>
<tr><td>Pooled Patent</td><td>2.32 (2.28)</td><td colspan="3">Copyright vs. Pooled Patent
t (956) = .623, p = .533 n.s.</td></tr>
<tr><td colspan="2">Patents vs. Each Other</td><td colspan="3">All ts ≤ 1.77, All ps n.s.</td></tr>
</table>

There were no differences at all across any of the conditions, on any of the measures.[197] Several factors did correlate with production of creative answers, including time spent on the task (as noted above), how much fun participants thought the task was (r = .169), self-reported motivation (r = .126), how well they understood the task (r = .116), self-reported education (r = .119), and self-reported special ability (r = .064). None of these factors differed across condition, except motivation, which was higher in both the Copyright (8.03) and Patent Mid (8.07) conditions as compared to the No Incentive condition (7.45).[198]

A bootstrapped mediation analysis indicates that, as expected, any lower output in creative answer production by those in the No Incentive condition (compared to those in Copyright or any Patent condition) can be

196. The results do not differ if we look at the "creative answers per minute" metric.

197. Although these results are not stated as a total creativity score of between 0 and 100, as subjects were instructed, the fluency, originality, and flexibility scores given to each subject could readily be normalized to a 100-point scale. The normalization does not affect the analysis herein.

198. Scale from 0–10; Sidak adjusted ps = .048 and .026, respectively.

explained at least in part through lower reported motivation (95% CI: [.0091, .1159], based on 10,000 resamples). We also found that reported enjoyment of the task was highly correlated with motivation as discussed above. Those two factors (No Incentive vs. Any Rule condition and task enjoyment) alone accounted for nearly 20% of the variance in motivation across all participants ($R^2 = .19$).

We find that motivation has an impact on the generation of creative answers through persistence: Those who report higher motivation tend to spend longer on the tasks, and as a result generate a greater number of creative answers (95% CI: [.0784, .1556], based on 10,000 resamples). Note that this mediation is not significant for the "creative answers per minute" metric. That is, motivated participants are not producing answers any faster, but they simply persist longer and hence generate a higher volume of answers. If this is the case, our short time window (180 seconds per task) could explain our failure to detect significant differences between the conditions. Had we used a longer time window, variations in motivation between the conditions may have resulted in measurable differences in creative output.[199]

In addition, although the threshold conditions did not produce any changes in creative output, we have some clues about the differences between internal motivation (such as how much one enjoys a task) and external motivation (such as how much the particular incentive condition affects output). This in turn might begin to explain some of the nuances of how and when these rules are likely to affect creative output. Future research should explore how these factors interact in a complex environment.

D. Experiment 4 – Non-Creative Task

Our findings from two of our previous three experiments suggest that subjects perform better on a variety of creative tasks when their chance to win a monetary prize is determined by a high threshold of achievement. What is unclear, however, is whether this effect is specifically related to performance on creativity tasks or whether it exists for other kinds of tasks as well.

To begin to answer this question, we performed an additional experiment using a simple addition task. Subjects were presented with ten numbers in a matrix and asked to find the two that summed to a target number. Like the creativity task, this task required our subjects to engage in cognitive effort, but unlike those tasks, this task did not involve

199. In Experiments 1 and 2, we detected some significant differences between conditions even using short time periods similar to those used in Experiment 3. It is possible, however, that variations in performance simply show up earlier with certain kinds of creativity than they do with others.

creativity. Our goal with this experiment was to isolate the role of creativity in our results. In the previous experiments, it was possible that the high threshold was simply motivating greater cognitive effort rather than motivating greater creativity. Here, we test whether the different thresholds produce different results when only cognitive effort is at stake.

Subjects were initially told that they would be playing a game in which they needed to find two numbers that added up to a target number.[200] Subjects were shown successively a series of matrices, each of which included ten two-digit numbers and was paired with a "target" number that was the sum of only two of the numbers in the matrix. Before seeing this series of matrices, subjects were given a practice round with one matrix and associated target number to make sure that they understood the game. Subjects were then told that they would receive one point for each matrix they solved correctly (by selecting the two numbers that summed up to the associated target number) in a total of 90 seconds. They then completed the task.

As with the creative tasks in Experiments 1–3, the subjects were randomly assigned to one of the five threshold conditions. There were 30 possible matrices to solve, but the maximum number attempted in 90 seconds was 16. Although we did not make any attempt to stop participants from using alternate means to solve the problems, the time constraint and number of possible combinations makes it more costly to cheat than to simply solve the problem by inspecting and summing.

Of the 1,007 participants in the sample, 32 had technical errors with the task and were not timed. These subjects are excluded from the main analyses (but are nonetheless utilized to provide some baseline information about task difficulty, as outlined below). Four additional participants are excluded for a different error which makes it unclear how much of the task they were able to complete before being moved on to the demographic questions. Of the remaining 971 participants, 27 said that we should not use their data (as described with regard to the previous experiments above). The analyses that follow are of the remaining 944 participants (except where noted).

200. A similar task design has been used by other researchers as well. *See* Ariely et al., *supra* note 94, at 460–61.

Across the conditions, participants answered an average of 4.24 of the problems (SD = 2.19) in the allotted 90 seconds. Below are the results of the first five problems (time expired during the 6th round or earlier for 74.9% of the participants):

Table 9[201]

	Round 1	Round 2	Round 3	Round 4	Round 5
Average Time to Solve	26.40 (18.83)	19.90 (12.79)	9.65 (7.40)	12.50 (7.51)	17.81 (8.52)
Percent Correct Solutions	85%	94%	98%	97%	91%
N	905	797	732	606	384
Percent Correct (no time constraint)	72%	87%	97%	94%	84%

There were no significant differences across conditions in task performance. This is true for total number correct,[202] total number attempted,[203] and percent correct of those attempted.[204] If we look again at our representative comparison between Copyright and Patent Mid, they are not statistically different on any of the measures (all *t*s $\leq$ .626, *n.s.*). Below are the results from a one-way ANOVA of several key contrasts.

201. All means exclude participants whose 90 seconds expired during the round. The "no time constraint" averages are for the above described participants whose timers did not work.

202. $F(4,939) = .943$, *n.s.* All Sidak adjusted *p*s $\geq .572$.

203. $F(4,939) = 1.078$, *n.s.* All Sidak adjusted *p*s $\geq .556$.

204. $F(4,939) = .116$, *n.s.* All Sidak adjusted *p*s = 1.

Table 10

<table>
<tr><th></th><th>Puzzles Solved Correctly</th><th>No Incentive/ Copyright Comparison</th><th>Copyright/ Patent Comparisons</th><th>No Incentive/ Pooled Patent Comparison</th></tr>
<tr><td>No Incentive</td><td>4.16 (2.23)</td><td rowspan="2">t (939) = 1.48
p = .140, n.s.</td><td></td><td></td></tr>
<tr><td>Copyright</td><td>3.81 (2hh.23)</td><td rowspan="3">All ts ≤ .589
All ps ≥ .556, n.s.</td><td></td></tr>
<tr><td>Patent High</td><td>3.84 (2.00)</td><td></td><td rowspan="3">t (939) = 1.64
p = .101, n.s.</td></tr>
<tr><td>Patent Mid</td><td>3.75 (2.30)</td><td></td></tr>
<tr><td>Patent Low</td><td>3.95 (2.44)</td><td></td><td></td></tr>
<tr><td>All Rules Pool</td><td>3.84 (2.25)</td><td colspan="3">No Incentive vs. All Rules Pooled
t (939) = 1.74, p = .082 n.s.</td></tr>
<tr><td>Pooled Patent</td><td>3.85 (2.26)</td><td colspan="3">Copyright vs. Pooled Patent
t (939) = .181, p = .857 n.s.</td></tr>
<tr><td colspan="2">Patents vs. Each Other</td><td colspan="3">All ts ≤ .856, All ps ≥ .392, n.s.</td></tr>
</table>

We asked many of the same demographic questions of the participants, including age, gender, motivation on the task, how fun they thought the task was, how competitive they were, how educated they were, and how good they were at math. Age was uncorrelated with performance. Men tended to get more correct answers than women (Male M = 4.24, Female M = 3.24, t = 5.79, p < .001), but gender was distributed evenly across conditions. Unsurprisingly, self-reported education, math ability, and task enjoyment were significantly correlated with performance (all rs ≥ .089, all ps ≤ .006). Competitiveness also predicted performance, such that those who scored 1 point higher on the competitiveness scale produced on average 0.31 more correct answers. All of the above factors, however, were evenly distributed across conditions. Finally, participants who scored better believed they were both more likely to get into and win the lottery (both rs ≥ .176, both ps ≤ .0001).

Two interesting factors that were correlated with performance were estimations of how many others were in the game in total, and estimations of how many others were in the lottery (Patent conditions only).[205]

205. Both Spearman rs ≥ .162, both ps ≤ .0001.

Estimations of how many others were in the game in total were evenly distributed across conditions.[206] For the Patent conditions, estimates of how many people would make the lottery did increase with the threshold (as in previous studies), but a mediation analysis indicated that this estimate did not mediate the relationship between condition and performance.[207]

These results suggest that the different threshold conditions employed in this study do not significantly affect subjects' effort on simple cognition tasks.[208] Thus, the differences between conditions that we observe in the earlier experiments are more likely based on a relationship between threshold level and creative performance.

E. Summary of Results

Prior research on creativity incentives suggests that in certain circumstances the provision of rewards for creative performance undermines creativity.[209] That research indicates that monetary incentives could negatively affect creativity by either crowding out people's intrinsic motivation or causing them to choke.[210] The work by Amabile, Ariely, and others, although not directly addressed to the issue of creativity thresholds, seemed to suggest that high thresholds might similarly affect creativity.[211] One implication of their research was that the high creativity threshold associated with patent law would produce poorer creative performance than copyright law's low threshold. Our results are not consistent with that prediction, and they suggest that, in fact, the opposite might be true.

In none of our experiments did subjects in the Patent conditions perform significantly worse than those in the Copyright or No Incentive conditions. This is true even in our final experiment involving non-creative cognition. Although it is difficult to tell why, the high threshold in the Patent conditions did not adversely affect subjects' performance by crowding out subjects' intrinsic motivations or causing them to choke.

Moreover, our research suggests that the opposite may be true of high thresholds—the existence of some non-trivial creativity threshold seems to have produced better results. In Experiment 1 (computational creativity),

---

206. Kruskal–Wallis H(4) = 7.943, p = .094. A nonparametric test was used because the estimates for this question were unbounded and ranged from 0 to 2,000,000.

207. β = –.0006, 95% CI: [–.0078, .0300]. A CI that includes zero indicates a nonsignificant indirect effect, based on 10,000 bootstrapped resamples, as described in Preacher & Hayes, *supra* note 188. Though there was no effect of condition on performance, it is still possible for mediation to be detected. *See* Hayes, *supra* note 172.

208. An unreported pilot study yielded similar results. That study involved a memory task that asked subjects to name as many U.S. Presidents as they could in ninety seconds. There were similarly no statistical differences between the conditions.

209. *See supra* section II(A)(2).

210. *See supra* section II(A)(2).

211. *See supra* section II(A)(2).

Patent subjects consistently outperformed those in the Copyright and No Incentive conditions. And the results from Experiment 2 (verbal creativity) are generally similar. The overall direction of the data is consistent, with better performance in Patent conditions, and the comparison between performance in the Copyright and Patent Mid conditions found that the high threshold produced significantly more creative answers. These findings are in accord with the research on goal setting discussed above.[212] The results from Experiment 3 (figural creativity) suggest that part of what creativity thresholds might affect is motivation, which engenders greater persistence, and hence greater output. The impression from Experiment 4 (non-creative task) is dissimilar; we saw no difference in performance when the task did not call for creativity.

Interestingly, none of our experiments indicates any significant differences between the various Patent condition thresholds. We considered that if a choking effect were to emerge, perhaps it would do so as the threshold increased. We see no evidence of this in our data. Perhaps such an effect would have emerged if the threshold became yet more difficult to achieve (for example, a threshold cutting off all but the top 1%). Whatever effect the higher threshold seems to be having, it appears to be doing its work only by imposing a non-negligible threshold in the first place.

Finally, we should note that although we do not find as strong a difference between the Copyright and Patent conditions in Experiment 2 as in Experiment 1, that does not mean that such a difference does not exist for verbal creativity. Unlike the data for Experiment 1, in which the creativity scores were measured objectively, in Experiment 2 the data are measured subjectively, producing more noise. It is possible that whatever effect the threshold may have been having in Experiment 2 was simply drowned by the noisiness of the subjectively scored data.

Experiment 3 failed to yield significant differences between the threshold conditions, and this too may have been a difficulty with our study design. Although the scoring metrics that we used for Experiment 3 were objective measures of creativity, they may not have fully captured the variability in and complexity of creativity involved in the figural creativity task. In addition, the relationship between motivation, task persistence, and creativity suggests that the short time period of our study may have blunted differences that would have appeared with a longer duration.

IV. Implications for IP Law

The experiments reported in this Article shed interesting new light on the effects of incentives on creativity and the role of thresholds in IP law. Before we spell out the implications of this research, it is important that we

212. *See supra* notes 127–28.

discuss the limitations of our experiments and the generalizability of our findings.

A. Addressing the Limitations of This Research

In these experiments, higher creativity thresholds appear to produce no worse creativity and may, in fact, produce more and better creativity than do low thresholds. The main drawback of this kind of research, however, is that it requires considerable abstraction from "real world" contexts in order to produce an experimental setting that is not so complex as to be unadministrable. The legitimacy and extent of these abstractions affect an experiment's ecological validity (how well it tracks what happens in the real world). Here, we address four concerns about the ecological validity of our research.

First, the subjects in our experiments were all laypeople recruited from Amazon's Mechanical Turk and not professional or amateur creators. This difference could matter for a number of reasons. For example, our subjects and "real" creators might differ in the degree to which they are internally motivated to complete the creativity tasks. As explained in Part II, research suggests that internally motivated people may respond differently to incentives than externally motivated people. Perhaps, for example, we did not find a "crowding out" effect because our subjects had little to no intrinsic motivation to crowd out and the high threshold simply motivated them to work harder than the low threshold did.[213]

Obviously, whether this is true is subject to empirical validation. We plan to run similar experiments in the future using subjects who could be thought of as specialists in these fields.[214] That said, with the removal of formalities in copyright law[215] and the rapid growth of user-generated

---

213. Or conversely, perhaps Amazon's Mechanical Turk subjects are very likely to be externally motivated, given that they opt to use this service to earn money for tasks. Our experiments suggest that this may be true in the sense that they are very sensitive to small differences in payouts. When we first ran our pilot experiments, we offered subjects no money to participate, but only a chance to win a $500 prize. It took a long time to get subjects to participate, but once we did, we recorded results in a version of the Experiment 1 task that were virtually identical to those reported here. We then re-ran the pilot experiments offering subjects $1 to participate and a chance to win a $500 prize. Very quickly, we had enough subjects, finished data collection, and recorded results virtually identical to those reported here. At the same time, in another experiment implementing the computational-creativity task, we asked subjects whether they would prefer to be in the Copyright condition or a Patent condition. Of 186 usable participants, 86% preferred the Copyright condition ($N = 160$) and 14% preferred a Patent condition ($N = 26$). There were no statistically significant differences between those who chose the Copyright condition and those who chose a Patent condition.

214. For example, we might test computer programmers in the computational-creativity task, creative-writing students in the verbal-creativity task, and designers or engineers in the visual-creativity task.

215. *See* Christopher Sprigman, *Reform(aliz)ing Copyright*, 57 STAN. L. REV. 485, 487–88 (2004) (characterizing the Copyright Act of 1976, Berne Convention Implementation Act, the

content,[216] copyright law increasingly confronts nonprofessional creators. Much of copyrightable production now comes from nonprofessionals,[217] to whom our findings may be especially applicable.

Related to this concern is a second issue about real-world creativity contexts. Much creative production occurs within the contexts of firms or other organizations.[218] Scientists may work for companies or universities, and computer programmers, writers, and musicians may all be employed by or working for others. In these situations, creators' incentives may not be structured by the IP regime but rather by internal mechanisms such as payment, rewards, or tenure.[219] Although in some of these situations producing a protectable creation may be important for innovators' careers and compensation,[220] the IP system and its thresholds may not be especially salient.[221]

Our response to this concern includes two parts. First, it is possible that the creativity thresholds we study here have similar effects on those managers and directors who guide research and innovation within firms. Specifically, although the individual creators may not be aware of the thresholds, the directors will be and may respond similarly to those in our study. Further research could test this hypothesis.

Additionally, our research should be relevant not just to those who are interested in designing optimal IP incentives but to everyone—including managers and directors—who is trying to structure incentive regimes to improve performance. The low threshold for obtaining a copyright implies that firms and organizations cannot use the legal standard as a legitimate measure of the quality of internally produced works. Accordingly, managers will likely need to craft their own mechanisms for encouraging

---

Copyright Renewal Act, and the Copyright Term Extension Act as having discarded copyright's formal procedural mechanisms).

216. *See* Edward Lee, *Warming Up to User-Generated Content*, 2008 U. ILL. L. REV. 1459, 1481 (noting a survey indicating nearly 50% of web users had created content of some kind for others to view on the internet).

217. *Id.* at 1460.

218. Fromer, *supra* note 9, at 1779.

219. Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1, 38–40 (1999) (explaining that firms and other organizations tend to provide incentives to their employees, such as awards and other recognitions); *see also* Fromer, *supra* note 9, at 1780 n.215 (noting that "[t]he need for expressive incentives in the law might be diminished in cases of corporate creation to the extent that firms comprehensively provide optimal expressive incentives to motivate their employees").

220. *See* Ofer Tur-Sinai, *Beyond Incentives: Expanding the Theoretical Framework for Patent Law Analysis*, 45 AKRON L. REV. 243, 280 n.185 (2012) (observing the "prevalent practice among scientists and engineers to list patent applications in their resumes").

221. Similarly, creative production frequently occurs in teams, *see, e.g.*, Anthony J. Casey & Andres Sawicki, *Copyright in Teams*, 80 U. CHI. L. REV. 1683 (2013), which might also change the effects or salience of IP thresholds.

and measuring creativity.[222] Our research provides evidence for how those mechanisms should be structured. Thus, even though our experiments do not perfectly model the creative process within organizations, our findings should be interesting to those who think about innovation in such contexts.[223]

Another issue worth addressing is the salience of the thresholds in our study. In real-world creativity contexts, people probably do not know precisely how creative they have to be to qualify for IP protection.[224] While sophisticated inventors may understand patentability thresholds and consciously adjust their behavior accordingly, it seems unlikely that many or any authors do the same for copyright law. Accordingly, the high salience of the thresholds in our experiments deviates from many real-world scenarios. This is, however, an artifact of the current copyright law in the United States. With thresholds set as low as they are, creators need not bother thinking about whether their output will be sufficiently creative. Were those thresholds set higher, as some scholars recommend,[225] creators would likely pay attention to the threshold in order to ensure that they clear it.

A final limitation of our study design is that all of our creativity tasks focus on the relatively rapid generation of answers. While these kinds of short-term tasks are widely used in social-science literature on creativity, they may miss important aspects of creativity involving the incubation and development of ideas.[226] It is possible, for example, that when people are subject to intense time pressures their behavior differs from when they have plenty of time to think and create.[227] It is difficult for us to predict how this difference might affect our results. Would subjects with more time focus more on internal motivation than external incentives or would high thresholds become even more salient? Again, further research could answer these questions.

B. Implications

We began this research with two opposing views of the probable effects of patent law's high threshold on creativity. On the one hand are

---

222. *Cf. id.* at 1729–35 (discussing how copyright law's right to prepare derivative works can be used to manage team creation in firms).

223. *Cf.* Fromer, *supra* note 9, at 1779–81 (maintaining that creators still need incentives to create even if firms secure most IP rights).

224. *See* Shyamkrishna Balganesh, *The Normativity of Copying in Copyright Law*, 62 DUKE L.J. 203, 266 (2012) (calling copyright's originality threshold "vague"); Christopher A. Cotropia, *Modernizing Patent Law's Inequitable Conduct Doctrine*, 24 BERKELEY TECH. L.J. 723, 776 n.273 (2009) (observing that patent law's "standard for nonobviousness is very unclear").

225. *See supra* text accompanying notes 51–55.

226. We are indebted to Pam Samuelson for this observation.

227. *See* Teresa M. Amabile et al., *Assessing the Work Environment for Creativity*, 39 ACAD. MGMT. J. 1154, 1161 (1996) (discussing research on time pressure and creativity).

legal scholars who suggest that a higher, patent-like threshold in copyright law would promote more and better creativity as creators strove to meet it. They argue that a higher creativity threshold in copyright law would motivate creators to produce better works. On the other hand, some social-science research by Amabile, Ariely, and others cautions about the effects of high external incentives. Their research indicates that higher rewards for creativity could crowd out intrinsic motivation or lead to choking. When applied to the issue of creativity thresholds in IP law, their work seems to suggest that patent law's high threshold could be undermining creative performance relative to copyright law's trivially low threshold.

Our experiments were designed to directly test the effects of high creativity thresholds in IP law, and our results are generally inconsistent with the predictions based on this social-science literature and consistent with the reasoning of the legal scholars. We see no evidence of crowding out or choking when subjects face high patent-like thresholds. Further, we see some evidence that high thresholds actually produce better creativity.

What are we to make of these results? First, there seems to be little reason to fear negative effects caused by high creativity thresholds, at least for creators who are externally motivated. This, of course, does not mean that the research by Amabile, Ariely, and others is wrong. That research makes clear that, when it comes to incentives and creativity, context matters a lot.[228] Our results are consistent with this focus on context—while directly giving subjects high monetary incentives for performance without instructing them that they ought to be creative may reduce creativity, structuring those incentives through IP-like probabilistic thresholds and instructing them to act creatively may not. More research will be needed to fully understand the psychological mechanism that distinguishes these situations, but this suggests a promising avenue for future experiments. This finding is important not just for IP law but also for innovation research more broadly. It indicates that incentives structured as probabilistic thresholds rather than as direct pay-for-performance targets and that are clear as to the goal of performance may not undermine creativity.

Second, the experiments reported in this Article give some qualified support to arguments of legal scholars who advocate heightening copyright law's low creativity threshold. Clearly in Experiment 1 and somewhat less so in Experiment 2, the higher Patent threshold resulted in better creativity than the lower Copyright threshold. These findings give empirical backing to the standard economic assumptions about motivation and incentives: Higher is better.

We should be clear—our research is not close to answering with finality the question of whether copyright law should impose a higher

228. *See supra* section II(A)(2).

threshold on creators. As we explained above, scholars have offered multiple justifications for the differences between patent and copyright thresholds.[229] Among the various arguments for where copyright and patent thresholds should be placed, the differing incentive effects of thresholds is only one of many. Even if our findings gave unqualified support for the claim that higher thresholds produce better creativity, those creativity benefits would have to be weighed against the costs of imposing a higher threshold, including information, error, adjudication, and psychological-preference costs.

Nonetheless, as a matter of direct legal implications, our research suggests a number of further inquiries about IP incentives. First, our results suggest that the effect of IP thresholds on creativity may vary significantly depending on the specific type of creativity at issue. Additional research is needed to understand fully which types of creative work are responsive to incentives in the way that the rational-choice model predicts and which types are less so. It is possible, for example, that the computational creativity in Experiment 1 is more sensitive to high thresholds than the divergent thinking verbal and figurative creativity in Experiments 2 and 3. If so, one might posit that higher thresholds are more appropriate in patent law than they are in copyright law. Our findings do not establish that this is the case, but they do suggest that the question is a good target for future research.

Relatedly, if different kinds of creativity respond differently to thresholds and incentives, then we must ask whether patent and copyright laws are properly calibrated across their respective subject matter. This inquiry is particularly important given that both patent and copyright laws concern fields of heterogeneous creativity, and in particular, both divergent and convergent thinking.[230] Copyright law and patent law apply different thresholds for protection, but each applies its own threshold with little variation across a very wide variety of different types of creativity (everything from motion pictures to software to shampoo bottle labels for copyright, and a similarly wide range from pharmaceuticals to cell phone interface designs to the business method of online one-click ordering for patents).

Our experiments also suggest opportunities for further calibration of creative incentives within IP fields. For example, the standard method for increasing authors' incentives in copyright law has been to lengthen the copyright term—that is, to give authors more rights.[231] But, if creativity in

229. *See supra* subpart I(B).

230. *See supra* section II(A)(1).

231. *E.g.*, Kelly Trimble, Comment, *Are Copyright Firms Incentive Intermediaries?*, 20 UCLA ENT. L. REV. 137, 142 n.19 (2013) (noting that "[i]ncreasing the copyright term duration is a common legislative incentive tool").

a wide enough number of areas within copyright's jurisdiction can be stoked by higher thresholds, then it may be that raising the creativity threshold for protection might be a more important and less expensive method to produce valuable creative contributions. The use of higher copyright thresholds, at least in certain areas, could "buy" more creativity at a lower social price.

Finally, it is worth contemplating whether and how the results of our study might have differed if our subjects had been professional or serious amateur creators. The subjects in our experiments are not professional creators. Moreover, given that they are choosing to participate in Mechanical Turk, there is a strong chance that they are extrinsically rather than intrinsically motivated. If that is correct, the sort of low threshold set up by copyright seems to have no motivating effect versus payment of a (very small) flat fee, at least at the level of reward (the prospect of winning $500) offered in our experiments. This does not mean that copyright law is not motivating creators in the real world. It is entirely possible, and indeed likely, that if the potential reward were significantly higher, we would see even low thresholds driving performance gains above the No Incentive condition. With a high enough reward, we might see a sort of "tournament effect" in which the low prospect of a very high reward may motivate people to invest heavily in competition for success in especially lucrative and status-conferring creative fields like acting and popular musicianship.[232] Similarly, we suspect that if our subjects were internally motivated professional creators working on creativity tasks that were within their field, we would see even low thresholds driving some performance gains—perhaps because the creators value the prospect of reward not simply for its expected monetary value but as a token of the importance of the creative effort that the subject values intrinsically. But our findings do suggest that at least for relatively low-stakes creativity involving nonprofessional creators who are motivated externally, low thresholds may not create significant incentives.

Conclusion

This study is the first to test the effects of IP laws' varying creativity thresholds on creators' behavior. In at least some domains, our experimental results seem to align with standard assumptions about incentives and motivation, in that increasing thresholds stimulate more creativity. All in all, the work that incentives do in IP systems seems much

232. *See* Peter DiCola, *Money from Music: Survey Evidence on Musicians' Revenue and Lessons About Copyright Incentives*, 55 ARIZ. L. REV. 301, 308–09, 339 (2013) (concluding, based on a survey of more than 5,000 musicians, that '[s]tronger copyright enforcement might provide . . . [musicians] incentives to move up the income ladder in a winner-take-all kind of market").

more nuanced and complex than is asserted in legal scholarship. Fundamentally, these results make clear that the central asserted rationale for copyright and patent laws—incentives for creation of valuable works—is open to investigation. We hope that future experimental and other empirical work will continue to shed more light on structuring incentives to be creative.

* * *

Copyright's Topography: An Empirical Study of Copyright Litigation

Christopher A. Cotropia* & James Gibson**

One of the most important ways to measure the impact of copyright law is through empirical examination of actual copyright infringement cases. Yet scholars have universally overlooked this rich source of data. This study fills that gap through a comprehensive empirical analysis of copyright infringement litigation, examining the pleadings, motions, and dockets from more than nine hundred copyright lawsuits filed from 2005 through 2008. The data we collect allow us to examine a wide variety of copyright issues, such as the rate of settlements versus judgments; the incidence of litigation between major media companies, small firms, and individuals; the kinds of industries and works involved in litigation; the nature of the alleged infringement; the success rates of particular parties and claims; and the nature of remedies sought and awarded. We also analyze the data to identify ways in which copyright litigation differs from other civil suits and to show that certain plaintiff characteristics are more predictive of success.

I. INTRODUCTION 1982
II. STUDY DESIGN 1985
A. The Complaint 1987
B. The Docket 1989
III. STUDY RESULTS 1990
A. Commonplace and Performing Rights Cases 1991
1. *Complaint Content.* 1991
a. Party Characteristics 1991
b. Nature of Disputes 1996
c. Courts 1999
2. *Course of Litigation* 2000
a. Defendant's Response 2000
b. Activity During the Case's Pendency 2000

---

*Professor of Law and Austin Owen Research Fellow, University of Richmond. We would like to thank David Abrams, Robert Bone, Jessica Erickson, Paul Heald, Justin Hughes, Jay Kesan, Corinna Lain, Glynn Lunney, Rob Merges, Mark Michaels, Dotan Oliar, Kristen Osenga, Lee Petherbridge, Matt Sag, Pam Samuelson, David Schwartz, Michal Shur-Ofry, Rob Tyler, Amy Whitelaw, and participants at the 2013 Intellectual Property Scholars Conference, the 2013 University of Richmond Summer Colloquy series, the October 2013 Thomas Jefferson Intellectual Property Inn of Court, and the *Texas Law Review*'s 2014 Symposium on "Steps Toward Evidence-Based IP." We would also like to acknowledge the invaluable support of George Mason University's Center for the Protection of Intellectual Property and its Leonardo da Vinci Research Grants.

**Associate Dean for Academic Affairs and Professor of Law, University of Richmond. In addition to those acknowledged above, Jim would like to thank his personal topographist, Jane Savoca.

c. Termination. 2002
d. Remedies Granted 2003
B. FILE SHARING CASES 2004
1. Complaint Content 2004
2. Course of Litigation 2004
IV. ANALYSIS 2005
A. Comparing Copyright Cases to Other Civil Litigation 2005
1. Geographic Distribution of Cases 2006
2. Percentage and Magnitude of "Difficult" Cases 2009
3. Termination 2011
B. The Role of Party Size and Industry 2012
1. Party Size 2012
2. Party Industry (High-IP and Low-IP) 2016
V. CONCLUSION 2019
APPENDIX A: CODED FIELDS 2020
APPENDIX B: REGRESSIONS 2024

I. Introduction

Copyright reform is in the air. The Register of Copyrights has called for an across-the-board reexamination of the federal copyright statute—something that has not happened since the 1970s.[1] A team of academics, practitioners, and industry experts has produced *The Copyright Principles Project: Directions for Reform*, the culmination of three years of inquiry into "how current copyright law could be improved and how the law's current problems could be mitigated."[2] Most important, Congress has started to show interest: the chairman of the House Judiciary Committee recently announced "a wide review of our nation's copyright laws and related enforcement mechanisms"[3] and has begun to hold a comprehensive series of hearings on U.S. copyright law.[4]

Despite these calls for reform, there is much we do not know about how current law actually handles copyright cases. Empirical studies of copyright litigation are almost completely nonexistent. Some work has

---

1. *See generally* Maria A. Pallante, *The Next Great Copyright Act*, 36 COLUM. J.L. & ARTS 315 (2013) (setting out in detail the problems with the current copyright statute and the Register of Copyrights's vision for overhauling the statute and Copyright Office).

2. Pamela Samuelson et al., *The Copyright Principles Project: Directions for Reform*, 25 BERKELEY TECH. L.J. 1175, 1176 (2010).

3. Press Release, House Judiciary Comm., Chairman Goodlatte Announces Comprehensive Review of Copyright Law (Apr. 24, 2013), *available at* http://judiciary.house.gov/index.cfm/2013/4/chairmangoodlatteannouncescomprehensivereviewofcopyrightlaw.

4. Press Release, House Judiciary Comm., Subcommittee to Hold First Hearing on Comprehensive Copyright Review (May 15, 2013), *available at* http://judiciary.house.gov/index.cfm/2013/5/subcommitteetoholdfirsthearingoncomprehensivecopyrightreview.

been done on how courts decide fair use claims[5] and others are studying copyright registrations,[6] but other than that the field stands empty.[7] Who files copyright cases? What kinds of works are involved—software, books, music, film? What claims are made? How many cases go to trial? What remedies are awarded? Are some courts more favorable to claimants? No one knows the answer to these and other fundamental questions about the workings of our copyright system. This deficiency is in sharp contrast to the empirical studies done on patent litigation, which have been numerous, deep, and varied.[8]

---

5. *See generally* Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U. PA. L. REV. 549 (2008) (conducting an empirical analysis of the treatment of fair use doctrine in federal courts and prescribing solutions to the variance in applicability among lower courts); Neil Weinstock Netanel, *Making Sense of Fair Use*, 15 LEWIS & CLARK L. REV. 715 (2011) (examining prior quantitative studies of the fair use doctrine, the history of the fair use doctrine, and leading fair use cases, and concluding that the "transformative use" standard has become dominant in recent years); Matthew Sag, *Predicting Fair Use*, 73 OHIO ST. L.J. 47 (2012) (asserting, based on original empirical analysis, that the fair use doctrine is not as incoherent and unpredictable as other scholars have claimed).

6. *See generally* Dotan Oliar & Nicholas Matich, *Copyright Preregistration: Evidence and Lessons from the First Seven Years, 2005–2012*, 55 ARIZ. L. REV. 1073 (2013) (studying the preregistration of copyrighted works between 2005 and 2012, and recommending policy adjustments based on both original quantitative and qualitative data); Dotan Oliar et al., *Copyright Registrations: Who, What, When, Where, and Why*, 92 TEXAS L. REV. 2211, 2213–14 (2014) (examining both the geographic and demographic nature of copyright registrants and concluding that firms often register "motion pictures, serials, and computer files" whereas individuals tend to register "text and music").

7. Note, however, that scholars have done some interesting and fruitful empirical work in copyright outside the litigation context. *See generally* Christopher Buccafusco & Christopher Jon Sprigman, *The Creativity Effect*, 78 U. CHI. L. REV. 31 (2011) (demonstrating the existence of a "creativity effect," a valuation anomaly that is distinct from and more intense than the traditional endowment effect, whereby creators of work value their creations substantially more than buyers or mere owners of the work); Peter DiCola, *Money from Music: Survey Evidence on Musicians' Revenue and Lessons about Copyright Incentives*, 55 ARIZ. L. REV. 301 (2013) (studying the role of copyright law an as incentive for musicians); Paul J. Heald, *How Copyright Makes Books and Music Disappear (and How Secondary Liability Rules Help Resurrect Old Songs)* (Ill. Program in Law, Behavior and Soc. Sci., Paper No. LBSS14-07, 2014), *available at* http://www.law.illinois.edu/iplbss/page/papers.aspx (studying the availability of books and songs on Amazon.com and YouTube, respectively, and arguing that copyright law stifles distribution and market availability); Glynn S. Lunney Jr., *Empirical Copyright: A Case Study of File Sharing and Music Output* (Tulane Univ. Sch. of Law Pub. Law and Legal Theory Working Paper Series, Working Paper No. 14-2, 2014), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2372630 (concluding that, while file sharing has reduced the number of new artists to breach the Billboard Hot 100's top fifty list, file sharing has not reduced the creation of new original music).

8. *See generally* John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435 (2004) (asserting that "some patents are intrinsically more valuable than others" and identifying characteristics of the most valuable and, subsequently, most litigated patents); Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421 (2009) (finding that few patent cases involve allegations or offer proof of copying and that even fewer reported cases made a finding regarding copying); Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237 (2006) (making numerous findings, including that final rulings on the merits via summary judgment are more common and important than previously suggested and that even

This Article is a first step in addressing the absence of empirical research on copyright litigation. It presents the results of a study of almost one thousand copyright cases—and by "cases" we mean not published judicial opinions, but actual dockets and the complaints and other documents they contain.[9] We examined the dockets, read the pleadings, and coded 46 different fields and 125 different variables in each case. The result is a topography of copyright litigation, a broad look at the legal landscape in which copyright disputes are resolved. Our goal in taking such a broad-brush approach is to provide both a basis for an overall understanding of copyright litigation and a foundation for future research on more specific topics. (Future researchers may access our data at copyrightlawdata.com.)

That said, even this initial foray has produced some interesting results. We confirm the popular belief that the Central District of California and Southern District of New York are "hot districts" for copyright cases, but the data indicate that cases in those districts are less likely to result in a plaintiff win. We find that while copyright cases are no more likely to get contentious than other civil litigation, when they do get contentious, they get very contentious—resulting in significantly more docket entries, substantive rulings, and trials. Finally, we find a surprisingly high number of small firms and "low-IP" industries to be prominent (and successful) in

---

pretrial rulings on the merits may not necessarily reduce the cost of pursuing the patent infringement claim); Jean O. Lanjouw & Mark Schankerman, *Characteristics of Patent Litigation: A Window on Competition*, 32 RAND J. ECON. 129 (2001) (showing substantial and predictable variation across patents in their exposure to litigation risks based upon the species of patented material, e.g., drug or health patents); Jean O. Lanjouw & Mark Schankerman, *Protecting Intellectual Property Rights: Are Small Firms Handicapped?*, 47 J.L. & ECON. 45 (2004) (providing empirical data and analysis to show that a large patent portfolio reduces the probability of litigating any discrete patent within the portfolio, that this "portfolio effect" is stronger for small firms, and that increased interaction increases cooperation between firms); Shawn P. Miller, *What's the Connection Between Repeat Litigation and Patent Quality? A (Partial) Defense of the Most Litigated Patents*, 16 STAN. TECH. L. REV. 313 (2013) (arguing that owners who repeatedly pursue infringement claims will be successful); Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographical Choice Affect Innovation?*, 79 N.C. L. REV. 889 (2001) (studying how procedural and substantive differences among district courts encourage forum shopping and how forum shopping has continued despite the creation of the Federal Circuit); Kimberly A. Moore, *Judges, Juries, and Patent Cases—An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365 (2000) (suggesting that latent biases, which deferential-review standards mask, may pervade the jury-trial system for patent infringement suits); Deepak Somaya, *Strategic Determinants of Decisions Not to Settle Patent Litigation*, 24 STRATEGIC MGMT. J. 17 (2003) (proposing two motivation forces for the nonsettlement of patent suits: the strategic stakes a firm has in the litigated patent and the ability of competing firms to "mutually block" patent rights through litigation).

9. As Margo Schlanger and Denise Lieberman have pointed out, "for anyone who hopes to understand litigation . . . there is no substitute for court records." Margo Schlanger & Denise Lieberman, *Using Court Records for Research, Teaching, and Policymaking: The Civil Rights Litigation Clearinghouse*, 75 UMKC L. REV. 155, 168 (2006); *see also* David A. Hoffman et al., *Docketology, District Courts, and Doctrine*, 85 WASH. U. L. REV. 681, 684–86 (2007) (discussing the importance of conducting empirical research using entire trial court dockets).

litigation.[10] In contrast, major media plays a smaller role than expected, and individuals and authors are active as plaintiffs but tend to do poorly.

Of course, we focus here only on the world of litigation. Court cases represent only one component in copyright's legal regime. Some of the law's effect is felt at the *ex ante* incentive level, and much interaction between rightholders and users takes place through licensing rather than through litigation.[11] But "[t]he courtroom is the crucible of the law," where legal mechanisms undergo their most thorough and deliberate testing.[12] What we know about the workings of actual copyright cases tells us a great deal about the workings of copyright law overall.

The Article proceeds as follows. Part II describes the design of the study. Part III presents our descriptive data along several different dimensions: characteristics of the parties, industries, works, claims, resolutions, and remedies, to name just a few. Part IV then analyzes the descriptive data, using correlations and regressions, and explores two particular topics: key differences between copyright litigation and other civil cases, and the effect of party composition on the success rate of infringement claims.

II. Study Design

We began by identifying the relevant population: all cases filed in federal court from January 1, 2005 to December 31, 2008[13] where the "Nature of Suit" was Copyright.[14] We used Bloomberg Law's Docket

---

10. "Low-IP" refers to fields in which creative innovation is said to occur without much or any copyright protection. *See* Kal Raustiala & Christopher Springman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687, 1718 (2006) (claiming that the relative lack of IP protections in the fashion industry has not stifled innovation and may in fact serve the industry's interests).

11. *See, e.g.*, James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882, 899–903 (2007) (discussing the effect of licensing on the development of copyright law).

12. James Gibson, *A Topic Both Timely and Timeless*, 10 RICH. J.L. & TECH. 49, ¶ 1 (2004).

13. We chose a multiyear period so that the data would be less influenced by fleeting trends in litigation and thus more representative of typical litigation patterns. We chose 2005 to 2008 rather than a more recent time period because we wanted to maximize the chances that the cases had terminated, as one of our goals is to study a number of variables associated with termination. And we chose federal court because federal jurisdiction over copyright claims is exclusive. *See* 28 U.S.C. § 1338(a) (2012).

14. Lawsuits filed in federal court are assigned a "Nature of Suit" code. We searched for cases where the code was 820, which identifies the case as involving Property Rights—Copyright. Use of this code is common in constructing litigation studies focused on a particular subject matter. *See, e.g.*, Kesan & Ball, *supra* note 8, at 260 nn.177–78 (using code 830 for cases involving Property Rights—Patent). While this methodology may miss some copyright cases that were not properly identified as 820 cases, the number is likely negligible. *See* Matthew Sag, *Empirical Studies of Copyright Litigation: Nature of Suit Coding* 7 (Loyola Univ. Chi. Sch. of Law Pub. Law & Legal Theory, Research Paper No. 2013-017, 2013), *available at* http://ssrn.com/abstract=2330256 (finding that 820 coding "is a good enough sample for most

Search to formulate this list, which ultimately totaled 17,119 cases.[15] We then randomly pulled 1,077 cases from this list, of which we ultimately coded 957 in depth.[16] Of those 957 cases, 294 were filed in 2005, 267 were filed in 2006, 206 were filed in 2007, and 190 were filed in 2008.[17]

For each case, including those not coded in depth, we used a computer-automated script to extract the case name, the filing date, the docket number, the name of the court in which the case was filed, the name of the judge, the names of the parties, and a hyperlink to the case's docket on Bloomberg Law. Then we coded the randomly selected cases by hand in two stages—first focusing on the content of the latest-filed complaint and then focusing on the other docket entries in the case.[18] A complete list of fields coded and the data category for each field is available in Appendix A.

---

purposes").

15. Bloomberg Law's Docket database mirrors the federal court system's PACER database. Bloomberg obtains docket information and docket filings directly from PACER. Elizabeth Y. McCuskey, *Clarity and Clarification:* Grable *Federal Questions in the Eyes of Their Beholders*, 91 NEB. L. REV. 387, 443 (2012). The specific search limited the request to "U.S. District Court," with "Nature of the Suit" being "Property Rights—Copyrights [820]" and a filing date range between January 1, 2005 and December 31, 2008. Our 17,119 figure is comparable to the statistics from the Administrative Office of the United States Courts, which reported 17,371 copyright cases filed during the same time period. *See infra* note 65 (listing the specific databases consulted in obtaining the Administrative Office figure).

16. We discarded 111 cases because no complaint was available (on Bloomberg or on PACER), 8 cases because they had been misidentified as copyright cases, and 1 case because it was duplicative of a case already in the data set (having been transferred from one district to another and assigned a new docket number). Of the 111 cases for which no complaint was available, 43 were filed in 2005, 33 were filed in 2006, 34 were filed in 2007, and 1 was filed in 2008. Most were filed in various divisions of the Central District of California (72 cases) with the next-highest number being filed in the Southern District of New York (9 cases). Only 3 were filed in the Northern District of California.

17. This distribution mirrors the filing intensity of File Sharing cases, with most of those cases being filed in the earlier years of the period we studied. The distribution of the 383 Commonplace cases we coded was 91 cases in 2005, 86 cases in 2006, 87 cases in 2007, and 119 cases in 2008. *See infra* text accompanying note 32 (providing the authors' description of File Sharing and Commonplace cases).

18. We coded the complaints and dockets ourselves. To test our intercoder agreement, we both coded twenty of the same cases and selected Cohen's Kappa as the measure of intercoder agreement. *See* Mark A. Hall & Ronald F. Wright, *Systematic Content Analysis of Judicial Opinions*, 96 CALIF. L. REV. 63, 113–14 (2008) (explaining that the best practice for measuring and quantifying the reliability of intercoder agreement is to use a coefficient such as Cohen's Kappa, which measures the reliability of agreement between coders and controls for agreement that occurs purely by chance). Cohen's Kappa ranges from 0 to 1, with numbers near 1 indicating a higher degree of reliability. *Id.* Our Cohen's Kappa for the coded variables ranged from 1, which equates to "perfect agreement," to 0.799, which translates to "substantial agreement." Anthony J. Viera & Joanne M. Garrett, *Understanding Interobserver Agreement: The Kappa Statistic*, 37 FAM. MED. 360, 361–62 & tbl.2 (2005). The mean Cohen's Kappa was 0.931, which equates to "almost perfect agreement." *Id.* at 362 tbl.2. While the few disagreements were resolved, this level of intercoder agreement both provided information about the reliability of the data measurement system being used and facilitated feedback between the coders to ensure even greater reliability.

A. The Complaint

We began with the latest-filed complaint for each case.[19] We first coded the characteristics of the parties: the number of plaintiffs, number of defendants, and number of defendants that the plaintiffs identified as "Does." We then added the industries for plaintiff and defendant[20] as well as their sizes—either individuals, small firms, or Fortune 1000 companies (and their subsidiaries).[21] We also coded whether any of the plaintiffs was the author of the copyrighted work or works.[22]

Next, we coded information on the copyrighted works at issue in the case: the number of works and their subject matter.[23] We also used the subject-matter classification to generate a binary field called "high

---

19. The latest filed and available complaint was used when coding; however, when tallying the number of parties, we would include any party named in any complaint, regardless of when it was filed.

20. The coding for industry focused on the industry of the largest plaintiff or defendant, not the industry of the copyrighted work or works at issue. For some cases, these were one and the same; for others, they were different.

21. If there were multiple plaintiffs or defendants, size was coded based on the largest plaintiff and largest defendant. Doe defendants were coded as individuals. The Fortune 1000 size classification was based on the Fortune 1000 list for the year the case was filed. The Small Firm category included any party that was not an individual or a Fortune 1000 company (or subsidiary). That might seem to stretch the meaning of the term "small firm," but in fact such parties were almost always private-sector entities; the only exceptions involved one case with a public-sector plaintiff (a New York county) and two with public-sector defendants (a school district and a Texas city). That said, Small Firm would also include companies whose revenues are sufficient to put them in the top 1,000, but which are kept off Fortune's list for other reasons (e.g., because the firms do not file with any U.S. government agency). *See How We Pick the 500*, CNN MONEY, http://money.cnn.com/magazines/fortune/global500/2013/faq/ (noting that to make the Fortune 500 list companies "must publish financial data and report part or all of their figures to a government agency").

22. While coding, we called this field "Plaintiff_Creator," but "author" accurately describes the coding criteria, so we use the latter term here.

23. Our subject-matter categories were initially based on the Copyright Act's statutory classifications in 17 U.S.C. § 102(a) (2012), but we then broke down those categories into more specific subsets. Our reasoning is that the Copyright Act's statutory scheme sometimes combines dissimilar works into one category. For example, the Act considers both books and software to be "Literary Works." *See id.* § 101 (providing a definition of "Literary works" that includes software because the work may be expressed in "words, numbers, or other verbal or numerical symbols . . . regardless of the nature of the material objects"); *see also* 37 C.F.R. § 202.3(b)(i) (2008) (instructing that "Class TX" includes "all published and unpublished nondramatic literary works"). So it made sense to take a more granular approach. If multiple subject matters were at issue, then subject matter was coded as Multiple—Musical Work and Sound Recording, Multiple—Website, or Multiple—Other. The specific subject matter of the work at issue was determined by looking at the description in the complaint and, if attached, the copyright registration. Although we had hoped to compare our data to data from Copyright Office registrations, the Copyright Office uses a smaller (and frankly less illuminating) set of subject matter categories: nondramatic literary works, works of performing arts, works of visual arts, sound recordings, and serial works (i.e., periodicals). *Id.* § 202.3(b).

authorship," as distinguished from "low authorship" works that require effort but little creativity.[24]

We then looked into the overall nature and purpose of the suit. We began by determining whether the complaint involved a declaratory judgment, in which the plaintiff was allegedly threatened with a claim of infringement by the defendant.[25] We also recorded whether the complaint included a dispute over copyright ownership and any claims based on state law or foreign copyright.[26]

We next identified the particulars of each cause of action. First, we determined which specific subparts of 17 U.S.C. § 106 were the bases for any copyright infringement claims.[27] Next, we examined whether the complaint asserted other federal copyright claims, including any secondary liability claim, any Visual Artists Rights Act (VARA) claim under § 106A,[28] and any claim under the Digital Millennium Copyright Act (DMCA)—either fraudulent takedown liability under § 512,[29] anti-circumvention liability under § 1201,[30] or copyright management information liability under § 1202.[31] We also identified and coded non-copyright claims in three categories: (1) trademark infringement (including

---

24. High Authorship included all subject matters except Architectural, Literary—Industry Publications, Literary—Software, PGS—Apparel/Fashion/Textiles, and PGS—Industrial. *See* Jane C. Ginsburg, *Creation and Commercial Value: Copyright Protection of Works of Information*, 90 COLUM. L. REV. 1865, 1870 (1990) (distinguishing between "high authorship" and "low authorship" and using the term "low authorship" to describe works that require much effort but little creativity). More recent scholarship might call these "high-IP" and "low-IP" works. *See supra* note 10.

25. For purposes of this study, a case was identified as involving a declaratory judgment only when the complaint alleged that the defendant had accused the plaintiff of copyright infringement. In those cases, we reversed the party coding, so that the plaintiff would be coded as defendant, claims would be coded as counterclaims, and so forth. (Other types of declaratory judgments could be at issue in any of the cases in the study, but those falling outside this definition were not coded as such.)

26. Under foreign claims we also included claims alleging infringement of a foreign work under U.S. copyright law.

27. A case could be coded as alleging a claim under a particular subsection of § 106 even if the complaint did not explicitly cite that subsection. For example, a claim would be coded under § 106(3) if the defendant was accused of "distribut[ion]" or "sale" of the copyright work. 17 U.S.C. § 106(3) (2012). Coding was a particular challenge for adaptation claims under § 106(2), as they could always be articulated as mere reproduction claims. We encountered no cases like *Mirage Editions, Inc. v. Albuquerque A.R.T. Co.*, 856 F.2d 1341 (9th Cir. 1988), in which the difference between reproduction and adaptation might have been significant.

28. *See* 17 U.S.C. § 106A(a) (providing certain authors with a right to control the attribution and physical integrity of their work in specific circumstances).

29. *See id.* § 512(f) (prescribing liability for any person who makes a knowing and material misrepresentation as to whether an activity is infringing or was mistakenly disabled or removed).

30. *See id.* § 1201(a)–(b) (establishing primary and secondary liability for the circumvention of certain technological measures protecting copyrighted works).

31. *See id.* § 1202(a) (prohibiting the knowing and intentional provision or distribution of false copyright management information).

federal and state law claims alleging any likelihood of confusion or passing off), (2) breach of contract, and (3) other causes of action.

We then divided all the cases into three broad categories. We coded cases that alleged infringement via file sharing, filed by either the record or movie industry, as "File Sharing" cases. We coded cases alleging public-performance infringement of musical works (usually by food and drink establishments) as "Performing Rights" suits—so called because a performing rights organization like ASCAP or BMI was evidently behind the suit, even if not as a named plaintiff. We identified these two categories specifically because of their abundance during the years investigated (particularly the File Sharing suits)[32] and the observed uniformity of the complaints in these types of suits. The final category—cases that did not fall into either of the other two categories—we called "Commonplace" suits.

Finally, we used the complaint to identify the remedies sought by the plaintiff. For monetary relief, we coded for both actual damages and statutory damages.[33] We also coded for whether the complaint requested an injunction. Any requests for remedies not related to copyright claims were ignored.

B. The Docket

Having finished with the complaint, we turned to the case's docket, and the other filings it contained, to collect more information on the litigation.

We first examined the docket to determine whether any defendant filed an answer, a counterclaim, or a cross-claim. We also identified cases that were consolidated or transferred, or whose filing was the result of consolidation or transferring.[34]

We next identified all dispositive motions filed by either party. For example, we coded whether a party filed a motion for summary judgment[35] or motion for dismissal[36] under the Federal Rules of Civil Procedure. We also noted the number of substantive decisions made by the court—any

32. *See* Sarah McBride & Ethan Smith, *Music Industry to Abandon Mass Suits*, WALL ST. J., Dec. 19, 2008, http://online.wsj.com/news/articles/SB122966038836021137 (noting that from 2003 through 2008 the recording industry had sued about 35,000 people).

33. *See* 17 U.S.C. § 504(c)(1) (specifying that the copyright owner may elect to be awarded statutory damages up to $30,000 instead of actual damages and profits). We coded statutory damages only if the complaint specifically asked for such relief. In such cases we also accounted for whether the plaintiff sought enhanced damages for willfulness or reduced damages for innocent infringement. *See id.* § 504(c)(2) (providing for increased statutory damages up to $150,000 in the case of willful infringement or reduced statutory damages "not less than $200" if the infringer was unaware and had no reason to believe his activity amounted to infringement).

34. Both consolidations and transfers were coded simply as "Consolidation."

35. FED. R. CIV. P. 56(a).

36. FED. R. CIV. P. 12(b)(6).

order or other decision by the court resolving a dispute between the parties.[37]

We then determined the circumstances surrounding the termination of the suit.[38] We identified whether the case went to trial, and if so whether certain post-trial motions were filed and granted. The type of termination was also coded, as was the date of ultimate termination of the case. We also noted the winning party, if any.

Finally, the docket and other filings provided insight into whether any copyright remedies were awarded in the case. We coded whether an injunction was issued, even if by agreement of the parties. The specifics of the monetary remedy awarded, if any, were also coded.

III. Study Results

This Part sets forth the study's findings with regard to the information extracted from the complaints and dockets—the raw, descriptive data. (For correlations, regressions, and the accompanying analysis, see Part IV.)

We divide this description into two subparts. In subpart III(A) we cover the Commonplace cases and the Performing Rights cases, with a focus on the former, and in subpart III(B) we cover the File Sharing cases. We parse the cases this way because Commonplace and Performing Rights cases are most representative of the day-in, day-out copyright litigation that is the focus of our inquiry. In contrast, the File Sharing cases—although more numerous[39]—are unique to the time period at issue; the plaintiffs ceased filing most of these suits at the end of 2008, the last year of our study.[40] Allowing the unique, fleeting File Sharing litigation campaign to dominate the analysis would result in a distorted view of everyday, copyright litigation.

---

37. This was interpreted broadly to capture any instance in which a judge or magistrate judge issued an order that resolved a dispute between the parties or ruled on a motion in which the court had to take on the role of an absent party (e.g., a default judgment motion).

38. Of the 957 copyright cases ultimately coded, only 14 were still open at the time of coding. We coded the ultimate termination of the case rather than any earlier termination of a particular party.

39. The File Sharing cases constituted just over half (53.5%) of the total number of coded cases.

40. *See* McBride & Smith, *supra* note 32 (reporting on copyright owners' new initiative to fight file-sharing by working with Internet service providers rather than suing individuals). One might wonder why we studied a time period that included this particularly one-off, unrepresentative litigation campaign. As mentioned earlier, *see supra* note 13, we wanted to cover as recent a time period as possible, yet still study several years' worth of cases that had already terminated. With those goals in mind, choosing a time period that included the File Sharing cases was unavoidable.

A. Commonplace and Performing Rights Cases

Although we group the Commonplace and Performing Rights cases together in this subpart, we will focus mostly on the former for two reasons. First, there are 383 Commonplace cases in our sample, versus only 62 Performing Rights cases. Second, the Performing Rights cases are very homogenous and thus can be easily described: they are filed by the owners of copyrights in musical works (mostly subsidiaries of Fortune 1000 companies), the defendants are almost always small food-and-drink establishments and their owners, the claims comprise unauthorized public performance and secondary infringement, and the cases do not go to trial (with only one exception). We will therefore use the footnotes to identify any other material or unexpected differences in the Performing Rights cases.

1. Complaint Content.

a. Party Characteristics.—We begin with a description of the parties involved in Commonplace copyright cases.

In terms of sheer numbers, we found that plaintiffs tend to fly solo, but defendants are sued in small groups. Table 1 sets forth those findings.

Table 1: Number of Parties
Commonplace Cases (n = 383)

	Mean	Median	Std. Dev.	Range
Plaintiffs	1.70	1.0	3.85	1–71
Non-Doe Defendants	3.26	2.0	3.70	0–37
All Defendants	16.34	3.0	115.17	1–2002

As one can see, the average number of plaintiffs was 1.70.[41] The median number of plaintiffs was 1—meaning that more than half the cases involved only a single plaintiff.[42] The highest number of plaintiffs in a single suit was 71, but the second highest was 15, and only four cases had more than 10.

Counting defendants was more complicated, because a few plaintiffs sued a high number of Doe defendants (up to 2,000!) in addition to named defendants. Even without the Does, however, defendants tended to

41. At a 95% confidence level, the margin of error is ±0.39.

42. This was not true of the Performing Rights cases, where the average number of plaintiffs was 8.52. Combining Commonplace and Performing Rights plaintiffs would produce a mean of 2.66.

outnumber plaintiffs: a mean of 3.26 non-Doe defendants, with a median of 2.[43]

Next, the size of the parties. As already mentioned, this field had three categories: Fortune 1000 companies (and their subsidiaries), individuals (including Does), and small firms (i.e., any party that did not fall into one of the other two categories). As Table 2 shows, small firms dominated as plaintiffs, constituting the largest plaintiff in 64.23% of cases. Individuals accounted for 21.41% of the remainder and Fortune 1000 companies and their subsidiaries made up only 14.36%.[44] (We also found that the author of the copyrighted work was a plaintiff in the vast majority of cases—81.72%—suggesting a lack of a widespread "copyright troll" problem.)

Table 2: Size of Parties
Commonplace Cases (n = 383)

	Fortune 1000	Small Firm	Individual
Largest Plaintiff	14.36%	64.23%	21.41%
Largest Defendant	14.62%	72.06%	13.32%

On the defendant side of the caption, smaller firms dominated even more than they did as plaintiffs; they constituted the largest defendant 72.06% of the time. Fortune 1000 companies were a distant second, at 14.62% (which means they tend to be sued as often as they sue).[45] Individuals placed third, at 13.32%, even though Doe defendants were coded as individuals.[46]

Finally, what industries are involved in copyright litigation? Table 3 provides the answer on the plaintiff side. These data convey two immediate impressions. The first is that no one industry dominated; the most litigious industry was Apparel/Fashion/Textiles, clocking in at 13.58%. Indeed,

43. At a 95% confidence level, the margin of error is ±0.37. The high number of Does seemed to result from the fact that many plaintiffs sued a manufacturer of allegedly infringing goods and then also named several Doe distributors, or vice versa.

44. In contrast to the Commonplace cases, the Performing Rights cases almost always involved a Fortune 1000 company or subsidiary as plaintiff (96.77%), with the small remainder comprising small firms. On the other side of the caption, 85.48% of Performing Rights defendants were small firms and the rest were individuals.

45. At a 95% confidence level, the margin of error for Fortune 1000 firms as plaintiffs in Commonplace cases is ±3.47% and as defendants it's ±3.50%. This means we are 95% confident that Fortune 1000 firms are plaintiffs in 10.89% to 17.83% of cases and defendants in 11.12% to 18.12%. Thus, they tend to be sued as often as they sue.

46. Coding all Doe defendants as individuals probably resulted in some overcounting of the Individual category and undercounting of the Small Firm category, as there were a few Doe defendants who were alleged to be businesses.

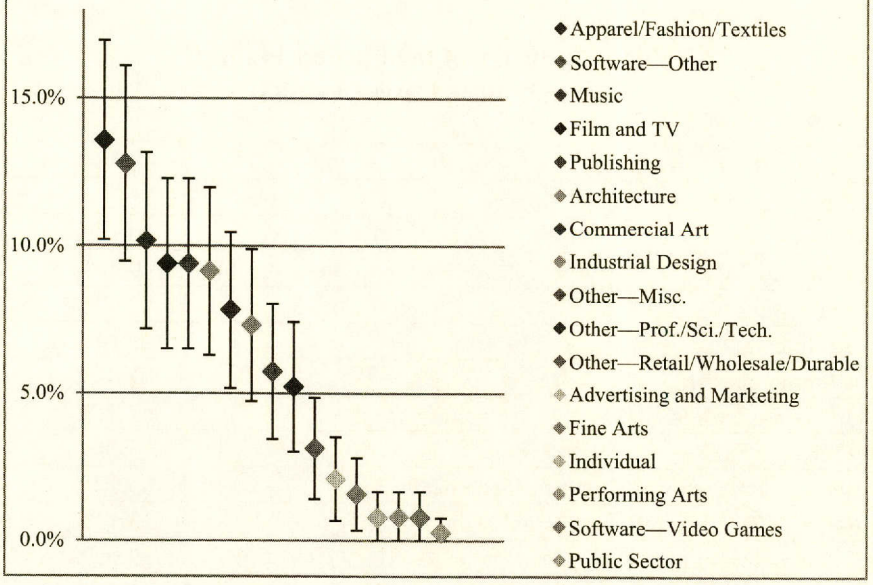
each industry was within the margin of error of at least one other industry, as Chart 1 illustrates.[47]

Table 3: Industry of the Largest Plaintiff Commonplace Cases (n = 383)

Apparel/Fashion/Textiles	13.58%
Software—Other	12.79%
Music	10.18%
Film and TV	9.40%
Publishing	9.40%
Architecture	9.14%
Commercial Arts	7.83%
Industrial Design	7.31%
Other—Misc.	5.74%
Other—Professional/Scientific/Technical	5.22%
Other—Retail/Wholesale/Durable Goods	3.13%
Advertising and Marketing	2.09%
Fine Arts	1.57%
Individual	0.78%
Performing Arts	0.78%
Software—Video Games	0.78%
Public Sector	0.26%

47. This is partly a function of the variety of different industries represented in the coding; with seventeen categories, it is not surprising to see some clustering. But as discussion of Core and Non-Core industries in Part IV will show, there is significant clustering even when industries are aggregated into two broad categories.

Chart 1: Plaintiff Industries with Margins of Error
Commonplace Cases (n = 383, confidence level = 0.95)



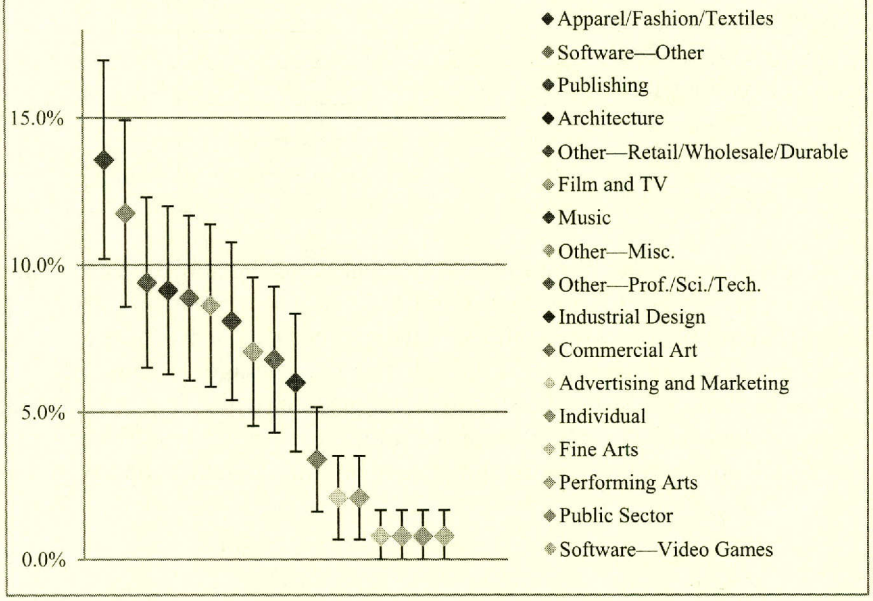
The second impression is that although the industries high on the list include some of copyright's usual suspects, such as software and music, several others are "low-IP" industries—e.g., Architecture, Industrial Design—including the industry atop the list, Apparel/Fashion/Textiles. We will explore this point further below, in subpart IV(B).

Similar results are obtained when one examines the industry of the largest defendant, as displayed in Table 4. Once again we see Apparel/Fashion/Textiles occupying the top spot, with a mix of high-IP and low-IP industries close behind. We also see another significant clustering of industries, as Chart 2 shows.

Table 4: Industry of the Largest Defendant Commonplace Cases (n = 383)

Apparel/Fashion/Textiles	13.58%
Software—Other	11.75%
Music	8.09%
Film and TV	8.62%
Publishing	9.40%
Architecture	9.14%
Commercial Arts	3.39%
Industrial Design	6.01%
Other—Misc.	7.05%
Other—Professional/Scientific/Technical	6.79%
Other—Retail/Wholesale/Durable Goods	8.88%
Advertising and Marketing	2.09%
Fine Arts	0.78%
Individual	2.09%
Performing Arts	0.78%
Software—Video Games	0.78%
Public Sector	0.78%

Chart 2: Defendant Industries with Margins of Error
Commonplace Cases (n = 383, confidence level = 0.95)



b. Nature of Disputes.—We now turn to the subject matter at issue and the claims found in the Commonplace complaints. We begin with Table 5, which reports on subject matter—the kinds of work that were the subject of the lawsuits.

As with the industry data, we see some usual suspects sharing top billing with some surprising companions. Three of the six most litigated kinds of works were low-IP: Apparel/Fashion/Textiles, Architectural Works, and Industrial Design. Together these three categories made up almost 30% of all litigated works. (A low-IP theme is clearly emerging from the data—a theme to which we will return in subpart IV(B).)

Table 5: Subject Matter—Specific Categories
Commonplace Cases (*n* = 383)

Literary Work—Software	13.05%
PGS Work—Commercial Art	12.27%
PGS Work—Apparel/Fashion/Textiles	12.01%
Motion Picture or Other Audiovisual Work	9.40%
Architectural Work	8.88%
PGS Work—Industrial Design	8.36%
Literary Work—Books/Newspapers/Journals	8.09%
Literary Work—Industry Publications	7.05%
Musical Work ("MW")	7.05%
Multiple—Website	5.48%
Literary Work—Other	2.09%
Multiple—MW and SR	1.83%
PGS Work—Fine Art	1.57%
Sound Recording ("SR")	1.04%
Dramatic Work	0.78%
Multiple—Other	0.78%
Pantomimes or Choreographic Work	0.26%

Table 6 shows the number of works that were the subject of the suits. The average is 21.26, but that number is not particularly meaningful because a handful of cases claimed infringement of hundreds—or, in one case, thousands—of works, and they distort the average. (Thus the large standard deviation.) More significant is the median, which is 2.0, indicating that more than half the cases involved multiple works. This finding may have implications for the portfolio theory of intellectual property, under

which firms own and exploit a collection of works whose aggregate value exceeds the sum of their individual values.[48]

Table 6: Number of Works
Commonplace Cases (n = 383)

Mean	Median	Std. Dev.	Range
21.26	2.0	197.33	1–3737

Next we examine the types of claims that plaintiffs make in Commonplace cases. As we see in Table 7, the vast majority of cases (95.04%) involved claims of federal copyright infringement, with no other copyright claim. State infringement claims accompanied federal claims in less than 2% of cases, and state infringement claims stood on their own even more rarely—roughly 1 in every 400 cases. In 2.87% of cases, however, there was no infringement claim at all; instead, in these "quiet title" cases, the plaintiff merely asked the court to resolve a copyright ownership dispute.

Table 7: Types of Claims—Federal, State, and Foreign
Commonplace Cases (n = 383)

Federal and State Claims	Federal Infringement	95.04%
	State Infringement	1.83%
	Federal and State Infringement	0.26%
	Ownership Dispute Only	2.87%
Foreign Claims	Infringement Only	2.61%
	Moral Rights Only	0.00%
	Infringement and Moral Rights	0.26%

Foreign claims—claims of copyright violation under foreign law, or claims based on works that originated abroad—were uncommon as well. Infringement claims of this type occurred on their own in 2.61% of cases, and in an additional 0.26% of cases when combined with a foreign moral rights claim.

Table 8 divides federal infringement claims into the § 106 subsection on which they are based.[49] The most frequent claims involved unauthorized

48. Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 5–6 (2005).

49. *See* 17 U.S.C. § 106 (2012) (delineating the rights of copyright owners).

reproduction of the work under § 106(1); such claims occurred in 87.99% of cases. Unauthorized distribution was close behind, at 73.89%. Unauthorized adaptation—the making of derivative works—was a distant third, at 36.81%. Public Display came next, at 22.45%, with traditional Public Performance at 9.40% and public performance of sound recordings by means of digital audio transmission at 0.26% (representing just 1 case out of 383).

Table 8: Types of Claims—Copyright Act Commonplace Cases (*n* = 383)

17 U.S.C. § 106 Claims	Section 106(1): Reproduction	87.99%
	Section 106(2): Adaptation	36.81%
	Section 106(3): Distribution	73.89%
	Section 106(4): Public Performance	9.40%
	Section 106(5): Public Display	22.45%
	Section 106(6): Digital Audio Transmission	0.26%
Other Copyright Claims	Secondary Liability	26.63%
	VARA (Section 106A)	1.31%
	DMCA (Sections 512, 1201 & 1202)	4.70%

Shifting to claims outside of § 106, we found allegations of secondary liability to be fairly common, occurring 26.63% of the time. In contrast, DMCA claims were rare (4.70%) and VARA claims even more so (1.31%).

The other category of claims we coded were non-copyright claims that accompanied the copyright claims, as we see in Table 9. Trademark claims were a frequent companion, occurring in 35.25% of Commonplace cases. Breach of contract was a fellow traveler in approximately 1 in every 5 suits. And other kinds of claims—a mix of trade secret, fiduciary duty, conversion, and more—occurred 48.04% of the time. All in all, plaintiffs filed a non-copyright claim of one kind or another in 61.62% of all cases.

Table 9: Type of Claims
Non-Copyright Commonplace Cases (n = 383)

Trademark	35.25%
Breach of Contract	20.10%
Other	48.04%
Any Additional Claim	61.62%

Finally, we examined the complaints to see what remedies plaintiffs sought. Statutory damages are usually considered an important weapon in a copyright owner's arsenal,[50] and the numbers in Table 10 bear this out. Enhanced statutory damages claims for willful infringement (maximum $150,000 per work infringed)[51] were far and away the most common monetary remedy that the complaints requested, surfacing in 69.71% of Commonplace cases.[52]

Table 10: Types of Damages
Non-Copyright Commonplace Cases (n = 383)

Damages	Statutory Damages—Enhanced	69.71%
	Actual Damages	18.54%
	Statutory Damages—Unenhanced	5.48%
	None	6.27%
Injunction Pleaded		96.34%

Actual damages were a distant second to enhanced statutory damages, at 18.54%, with unenhanced statutory damages third at 5.48%. (In the remaining 6.27% of cases, plaintiffs sought no damages at all.) But the most common remedy that plaintiffs pleaded was an injunction, seen in 96.34% of cases.

c. Courts.—The last data we collected from the complaints had to do with the courts in which plaintiffs chose to file their cases. The Central District of California, home to Hollywood, dominated the Commonplace

50. *See* Pamela Samuelson & Tara Wheatland, *Statutory Damages in Copyright Law: A Remedy in Need of Reform*, 51 WM. & MARY L. REV. 439, 442–43 (2009) (providing examples of "grossly excessive" statutory damages awards and discussing the "chilling effect" they produce).

51. 17 U.S.C. § 504(c)(2).

52. Note that the Performing Rights plaintiffs uniformly asked for statutory damages, but never alleged enhanced damages based on willfulness. This is in contrast to the File Sharing plaintiffs, who always sought the full $150,000 per work.

category, with 18.54% of filings. The Southern District of New York was next, with 11.75%. No other district was above the 4% mark.[53] Grouping the district courts by federal circuit produced similar results, with the Ninth Circuit leading the way (32.38%) followed by the Second (16.71%). Only one other circuit was above ten percent—the Eleventh, at 10.18%.

2. Course of Litigation.—Having finished with the complaint, we now turn to the remainder of the docket to glean information regarding the course of copyright litigation.

a. Defendant's Response.—The first focus is on the defendant's answer, or lack thereof. Defendants answered in slightly over half of the 383 Commonplace cases (57.70%—221 cases), to be exact. Of these 221 cases, only 23.24% (89) also included counterclaims or cross-claims. And for the 162 cases with no answer filed, we observed a dispositive motion (other than a motion for default judgment by the plaintiff) in only 33 cases. This leaves 33.68% (129 cases) of the Commonplace cases with no responsive action by the defendant except, possibly, consenting to a judgment or settlement.[54]

b. Activity During the Case's Pendency.—As the Commonplace cases moved toward termination, only 3.92% were consolidated or transferred. And at least one party filed a dispositive motion—a motion that if successful would have terminated one or more copyright claims—45.93% of the time. The specific breakdown of the dispositive motions observed is set forth in Table 11.

---

53. The 62 Performing Rights cases are much more evenly distributed among courts, with only the Northern District of California having a percentage in the double digits (11.29%) and only twelve districts having more than 1 case.

54. As for the Performing Rights cases, we saw answers filed 51.61% of the time. If there was no answer, there was also no other motion filed by the defendant, with only one exception. The rate at which defendants failed to respond in Performing Rights cases was accordingly much higher than in Commonplace cases.

Table 11: Dispositive Motions Filed
Commonplace Cases (n = 383)

12(b)(6) Motion	6.8%
Default Judgment	6.5%
Summary Judgment	5.5%
TRO/Preliminary Injunction	3.9%
Lack of Jurisdiction	3.1%
Other Dismissal	1.8%
12(c) Motion	0.3%
JNOV	0.0%
Multiple Motions	18.02%
None	54.05%

Notably, in over half of the cases, neither party filed a single dispositive motion, indicating a lack of intensity in the litigation. Once a dispositive motion was filed, however, more would usually follow, as Multiple is the second-highest score on the list—18.02%, representing 69 cases.

Nor did many cases terminate through a district court's decision on a dispositive motion. Of the 377 Commonplace cases that had terminated at the time of our study, only 10.96% terminated on summary judgment, under Rules 12(b)(6) or 12(c), on a motion for default judgment, or for lack of jurisdiction. Most cases (88.86%) terminated voluntarily.[55]

Two other measures of a case's intensity—how hard the parties fought—are the number of substantive, contested decisions made by the court and, to a lesser extent, the number of docket entries in a case. Both of these were observed to be quite low.

In the Commonplace cases, the median number of substantive, contested decisions made was 1. The number of such decisions ranged widely, from 0 to 117, with the mean being 2.35 and the standard deviation being 7.10. Just under half the Commonplace cases (49.35%) contained no substantive decisions, and 70.50% contained 1 or fewer.

The median number of docket entries for the Commonplace cases was 29, with the average number of docket entries being 52.11 with a standard deviation of 85.78. The number of docket entries ranged from 2 to 1,085.

Finally, very few Commonplace cases (4.24%—16 cases) went to trial. Post-jury verdict motions (judgments notwithstanding verdict or judgments as a matter of law) were filed in 6 of those cases, but the court denied them all.[56]

---

55. For more on this data, see *infra* Table 12.

56. The Performing Rights cases had less activity across the board. The only dispositive

c. Termination.—The data also show how copyright cases terminate. First, who won? In an overwhelming majority of Commonplace cases (85.41%) the case was dismissed with neither party winning an adversarial judgment over the other (although roughly 1 in 5 of those cases involved a *consent* judgment filed with the court). Of the 16.18% of cases in which there was an explicit winning party, the defendant won a little more than half (54.10%) and the plaintiff a little less (45.90%).[57]

Table 12: Termination Type
Commonplace Cases (*n* = 383)

Voluntary Dismissal	34.46%
Settlement	29.50%
Agreed Judgment	16.19%
Default Judgment	5.48%
Other Dismissal	4.44%
Trial	2.87%
12(b)(6) Dismissal	2.35%
Summary Judgment	2.09%
Still Open	1.57%
12(c) Dismissal	0.52%
Lack of Jurisdiction	0.52%
JNOV	0.00%

As to how the cases terminated, most of the cases (80.16%) terminated voluntarily through a settlement, agreed judgment, or voluntary dismissal. In contrast, very few terminated via trial (2.87%) or by dispositive motion (10.97%). The specific breakdown of termination is set forth in Table 12.[58]

Most cases took around a year to reach termination. Of the 377 Commonplace cases that reached termination, the median time to termination was 288 days, while the mean time to termination was 413.06 days with a standard deviation of 410.35. The range was 11 days to 2,548

---

motion filed in most Performing Rights cases was for default judgment—20.10% of the time, representing 13 cases; in only 6 additional cases was any other dispositive motion filed, leaving 69.35% of the cases with no dispositive motion at all. Accordingly, the number of substantive decisions stayed extremely low, with 62.9% of cases having no substantive decisions and 90.32% having 1 or fewer. Only 1 Performing Rights case went to trial.

57. As for the Performing Rights cases, the winning party breakdown is similar to the Commonplace cases, with 72.58% of the cases resulting either in a win for neither party or in an agreed judgment. One deviation from the Commonplace cases, however, is that no defendant ever won a Performing Rights case outright.

58. The terminations in Performing Rights cases were largely voluntary (70.97%) or default judgments (17.74%).

days. Half of the cases pended for a year or less and 84.08% pended for less than two years.[59]

d. Remedies Granted.—For those Commonplace cases that did terminate, an overwhelming number resulted in no remedies granted by the court, which is not surprising given that most terminated through action of the parties rather than the court. Only 23.61% saw damages or an injunction granted. And if the agreed-judgment cases are removed, the number drops even further to 8.49%.

The court granted an injunction in 22.02% (83) of the cases. Of these injunctions, the vast majority (53 of 83 cases) were the result of an agreed judgment between the parties. As for monetary damages, the distribution is shown in Table 13.

Table 13: Awarded Damages
Commonplace Terminated Cases (n = 377)

Statutory—Willful	1.59%
Statutory—Regular	4.24%
Statutory—Innocent	0%
Actual Damages	1.59%
> 0 but can't tell more	0.27%
Agreed Damages	6.37%
None	87.53%

In the 14.06% of cases awarding damages, most were either regular statutory damages or agreed damage awards in consent judgments. Taking away the agreed awards, the percentage of cases resulting in damages drops to 7.69%, with regular statutory damages dominating the outcomes.[60]

59. The Performing Rights cases are similar to the Commonplace cases with regard to time to termination, with a median of 308 days and a mean of 429.87. The standard deviation, however, is much lower (425.08 days) which is not surprising given that most Performing Rights cases terminated the same way, within the same time frame.

60. The Performing Rights cases saw a higher incidence of remedy awards. Of the 61 cases that terminated, injunctions were issued in 21 (34.43%). The figure drops to 24.59% (15) of the cases if agreed injunctions are removed. As for damage awards, they appear in 42.62% (26) of the cases, and they drop to 24.59% (15) if one does not count agreed damages.

B. File Sharing Cases

1. Complaint Content.—We need not spend much time on the content of the complaints in the File Sharing cases, as they were all based on the same template and therefore differed from one another in only a few ways.

Of the 512 File Sharing cases, 93.75% were filed by the recording industry, with an average of 5.8 labels joining together as plaintiffs. The remaining cases were brought by the movie and television industry, with an average of 2.6 studios as plaintiffs. Most of the cases (70.51%) involved a single, named individual as defendant, but a sizeable minority (29.49%) were Doe-defendant cases. The latter tended to involve multiple defendants (5.8 on average) and were filed so that the plaintiffs could issue subpoenas to Internet service providers, so as to discover the identity of the Does using their IP addresses. The recording industry cases averaged 8.4 works per defendant (all sound recordings), with the movie industry cases at 2.1 (all audiovisual works).

Other than that, the complaints were essentially identical. The largest plaintiff was always a Fortune 1000 firm or subsidiary. The claims were exclusively federal copyright infringement and only claimed violations of the right to reproduce and the right to distribute. In all instances, the plaintiffs sought injunctions and statutory damages based on willful infringement.

The only other data of note involved the courts in which the cases were filed. Here we observed some surprising contrasts with the non-File Sharing cases. The only district with more than 10% of the File Sharing cases was the Eastern District of Pennsylvania, with 15.43%. The Western District of Texas was next, with 8.60%. The only other two jurisdictions with more than 5% were the Southern District of Texas, with 6.05%, and the Northern District of Illinois, with 5.07%. The two courts that dominated the Commonplace cases—the Central District of California and the Southern District of New York—were sixth, with 4.10%, and ninth, with 2.54%, on the File Sharing list, respectively, making each about three-quarters smaller in representation than in the Commonplace cases.

2. Course of Litigation.—For the File Sharing cases, the most interesting non-complaint data came from the non-Doe cases, of which there were 361, because very few Doe cases proceeded much further past the complaint.[61]

In the non-Doe cases, the defendant answered the complaint only 11.13% of the time, a much lower percentage than that observed in non-File Sharing cases. (Even the Performing Rights cases had a higher answer rate

61. No answers were filed in any of the Doe cases and very few, if any, dispositive motions were filed or terminations occurred (other than voluntary dismissals).

of 51.6%.) And when the defendant filed no answer, he or she also filed no dispositive motion. Indeed, named defendants did not file any motions in the File Sharing cases; the dispositive motion practice was left to plaintiffs filing for default judgments, which occurred in 38.50% of the cases.

Given this low defendant response rate, it is no surprise that the overall activity in the cases was minimal. In 95.29% (344) of the non-Doe cases, the court made fewer than two substantive decisions. And in 55.68% (201) of those cases, not a single substantive decision was made. The highest number of substantive decisions in any File Sharing case was eleven.

Most of the non-Doe cases (63.43%) ended in a voluntary termination of some sort. In the remainder, the plaintiff was declared the winner, mostly by default judgment. Just as with the Performing Rights cases, no File Sharing case ended with the court identifying the defendant as the winning party. And the time to get to these terminations was shorter than in Commonplace cases, with a median of about half a year (185 days) and a mean of 286.50 days with a standard deviation of 316.81.

As for remedies, the court explicitly ordered damages in 33.52% of the 361 non-Doe cases, with the plaintiff getting unenhanced statutory damages in 117 of those cases (32.4%) and an injunction in 120 (33.24%).

IV. Analysis

We hope the foregoing description of our data will be of help to legislators, practitioners, scholars, and others interested in the practice and development of copyright law. In the last Part of this Article, however, we move from description to analysis, using correlations and regressions to delve more deeply into the data. Or at least some of it. Given the sheer breadth of the information collected, we have chosen only two issues to explore. (We leave other avenues of inquiry to future researchers, to whom we gladly make our data available.[62]) First we will examine the differences between copyright litigation and other civil cases. Then we will explore the ways in which the identities of the parties and subject matters in copyright cases interact with one another—and sometimes influence litigation outcomes.

A. Comparing Copyright Cases to Other Civil Litigation

In this subpart, we compare our copyright case data to various data sets involving other kinds of civil litigation, in an attempt to see whether copyright litigation is unique. In particular, we examine where cases are filed, the extent to which cases are "hard," and how and when they terminate.

---

62. COPYRIGHT L. DATA: COPYRIGHT LITIG. DATA PROJECT, http://www.copyrightlawdata.com.

Our analysis confirms the commonly accepted belief that copyright cases are filed at a higher rate in the Central District of California and Southern District of New York than other civil cases. However, our data indicate that plaintiffs are less likely to receive a favorable judgment in these districts.

We also find, interestingly, that when compared to civil litigation in general and to patent and trademark cases more specifically, copyright cases end up in about the same place—a settlement or voluntary dismissal—but take longer to get there and contain more substantive decisions and docket entries. Copyright cases also result in a higher percentage of trials. All of this suggests that copyright law's complexity, uncertainty, and standard- and fact-driven doctrine cause litigants and courts to work harder to reach the typical civil litigation result.[63]

1. Geographic Distribution of Cases.—The geographic distribution of copyright cases fits with the common notions of copyright "hotbeds."[64] Thirty percent of Commonplace cases were filed in either the Central District of California or Southern District of New York. The question, however, is whether this simply follows the typical distribution of civil litigation in federal courts or is unique to copyright law.

To answer this question, we compared our data to data from the Administrative Office of the United States Courts (AO) from the same time period.[65] In Table 14, we compare the percentage of all comparable private

63. *See, e.g.*, Shyamkrishna Balganesh, Essay, *Copyright Infringement Markets*, 113 COLUM. L. REV. 2277, 2297 (2013) (explaining how difficult the "substantial similarity" standard is to determine for both copyright litigants and the courts); Gibson, *supra* note 11, at 888–89 (describing the inherent malleability and flexibility of the fair use doctrine); *id.* at 891 (detailing the indeterminacy of other facets of copyright law, such as the "substantial similarity" standard); *id.* at 905–06 (noting the complex and fact-driven nature of the Supreme Court's copyright holdings).

64. *See* Michael W. Shiver Jr., *Objective Limitations or, How the Vigorous Application of "Strong Form" Idea/Expression Dichotomy Theory in Copyright Preliminary Injunction Hearings Might Just Save the First Amendment*, 9 UCLA ENT. L. REV. 361, 370 n.53 (2002) (discussing how the Second and Ninth Circuits have been the hotbeds of copyright litigation for many years, mostly because they contain Hollywood, Silicon Valley, and New York City).

65. We obtained this data from the Inter-university Consortium for Political and Social Research (ICPSR). Specifically, we used the Federal Court Cases: Integrated Data Bases for 2005 through 2011 to garner data on all cases filed from 2005 through 2008. INTER-UNIV. CONSORTIUM FOR POLITICAL & SOC. RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2011 (ICPSR 33622), http://doi.org/10.3886/ICPSR33622.v2; INTER-UNIV. CONSORTIUM FOR POLITIAL & SOC. RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2010 (ICPSR 30401), http://doi.org/10.3886/ICPSR30401.v2; INTER-UNIV. CONSORTIUM FOR POLITICAL & SOC. RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2009 (ICPSR 29661), http://doi.org/10.3886/ICPSR29661.v3; INTER-UNIV. CONSORTIUM FOR POLITICAL & SOC. RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2008 (ICPSR 25002), http://doi.org/10.3886/ICPSR25002.v5; INTER-UNIV. CONSORTIUM FOR POLITICAL & SOC. RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2007 (ICPSR 22300), http://doi.org/10.3886/ICPSR22300.v3; INTER-UNIV. CONSORTIUM FOR POLITICAL & SOC.

civil cases[66] filed from January 1, 2005 to December 31, 2008, and all patent and trademark cases filed during that time period, in various districts and circuits, using both AO data and ours.

Table 14: Geographic Distribution Compared

	AO 2005–2008 Private Civil Cases (n = 672,728)	AO 2005–2008 Patent and Trademark Cases (n = 24,796)	Commonplace Copyright Cases (n = 383)
C.D. Cal.	3.83% (25,823)	13.01% (3,226)	18.54% (71)
S.D.N.Y.	5.85% (39,379)	6.63% (1,645)	11.75% (45)
S.D. Fl.	3.14% (21,152)	3.49% (865)	2.87% (11)
N.D. Ill.	3.50% (23,560)	4.57% (1,133)	2.87% (11)
Ninth Circuit	13.24% (89,065)	27.84% (6,905)	32.38% (124)
Second Circuit	10.32% (69,452)	10.64% (2,640)	16.71% (64)
Fifth Circuit	13.00% (87,470)	10.32% (2,560)	8.88% (34)

Looking at Table 14, the difference in distribution between copyright cases and comparable general civil cases is statistically significant.[67] The

---

RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2006 (ICPSR 4685), http://doi.org/10.3886/ICPSR04685.v3; INTER-UNIV. CONSORTIUM FOR POLITICAL & SOC. RESEARCH, FED. CT. CASES: INTEGRATED DATA BASE, 2005 (ICPSR 4382), http://doi.org/10.3886/ICPSR04382.v3. The AO collects these data and makes them available through the ICPSR. *See* Theodore Eisenberg & Margo Schlanger, *The Reliability of the Administrative Office of the U.S. Courts Database: An Initial Empirical Analysis*, 78 NOTRE DAME L. REV. 1455, 1456–59 & n.1 (2003). These data sets are known to have some reliability problems. *See, e.g.*, *id.* at 1458 (noting that the AO data sets are not completely accurate due to their size and that other researchers have questioned the data sets' reliability); Barton Beebe, *An Empirical Study of the Multifactor Tests for Trademark Infringement*, 94 CALIF. L. REV. 1581, app. B (2006) (detailing earlier AO data sets' shortcomings and testing their reliability against data collected in trademark infringement cases). Accordingly, we also use other, non-AO data sets for comparison purposes.

66. This included all civil cases in the AO's data set except for habeas cases and all cases in which the United States was a party. We removed these cases in an attempt to construct a more directly comparable general civil litigation data set.

67. Pearson's chi-square reports a p-value < 0.0001.

consolidation of cases in the Central District of California and Southern District of New York does not follow the typical civil case-filing trends; instead, it is unique to copyright cases.[68]

What makes this observation even more interesting is the identity of the parties litigating in these districts. One might reasonably assume that the plaintiffs are major media companies—content-industry incumbents protecting publications, music, and motion pictures in their own backyards. This assumption is presumably what drives the belief that these are copyright-heavy jurisdictions.

This is, however, not the case. Focusing just on the 71 Commonplace cases filed in the Central District of California, 77.46% were filed by either individuals or small firms. And the clothing industry made up the highest percentage of plaintiffs in a single industry (32.40%).[69] Television and motion picture plaintiffs, which one would assume dominate the industry in that district, constituted only 28.16% of cases filed. Something other than the copyright industries commonly associated with the region is driving litigation in the hot districts. Perhaps the belief that these are copyright-savvy courts attracts copyright holders of all types to them.

Yet the statistical relationship between various litigation outcomes and the hot districts suggests that those districts are not incredibly plaintiff friendly. We ran a number of regressions and included, as an independent variable, whether a case was filed in either of the two hottest districts, the Central District of California or the Southern District of New York.[70] That variable significantly predicted only one dependent variable: plaintiff as winning party—and the relationship was negative.[71] In other words, filing in one of the two hot districts decreased the likelihood of a plaintiff win.

---

68. Moreover, the Commonplace cases we coded may actually *understate* the degree of concentration in the Central District of California and Southern District of New York. As detailed earlier, *see supra* note 16, there were 111 randomly pulled cases in which the electronic version of the complaint was not available. As it turns out, 72 of those cases were filed in the Central District of California and 9 in the Southern District of New York. If the Commonplace cases that appear in these uncoded complaints were included in Table 14, the percentage of copyright cases in these districts would be even higher.

69. Notably, clothing plaintiffs made up the largest percentage of cases filed in the Southern District of New York (22.22%).

70. All the regressions and their results are reported in Appendix B. In each regression, we controlled for the industry of the parties, the size of the parties, the number of parties, the number of works at issue, whether it was an intra-industry dispute, whether the works were high authorship, whether the author was a plaintiff, and whether the case was filed in one of the two hottest districts.

71. *See infra* Appendix B, Regressions 1 & 2. Both regressions are multinomial logistics with Winning Party as the dependent variable. The only difference between the two is that Regression 1 uses "Plaintiff is a Small Firm" as a binary independent variable and Regression 2 uses "Plaintiff is an Individual" instead. The reasons for running both regressions will become clear in section IV(B)(1), but for present purposes—i.e., measuring the likelihood of a Plaintiff Win in the hot districts—it makes no difference; both produce statistically significant results at a 95% confidence level, and both report a relative-risk ratio of around 0.34 (meaning that the plaintiff's

In short, although a disproportionately high number of copyright cases are filed in the Central District of California and Southern District of New York, plaintiffs are less likely to obtain a judgment in their favor there. Of course, these plaintiffs may still be receiving favorable settlements, and there is not a statistically significant relationship between defendant wins and the hot districts. Nevertheless, the data suggest that there is a disconnect between any perception of favorability in these districts and the reality of fewer outright plaintiff victories.

2. Percentage and Magnitude of "Difficult" Cases.—Another issue we can examine is how contested or difficult copyright cases are compared to other civil cases. The AO data and other previous studies provide four points of comparison that give us insight into the possible uniqueness of copyright cases. First, the AO data allow us to compare whether defendants answer at a different rate in non-copyright litigation. Second, data collected by other scholars allow us to compare the number of substantive decisions made by courts. Third, data collected by other scholars also allow us to compare the number of docket entries in cases to get a sense of the overall level of contentiousness. And finally, the AO data allow us to compare the rate of voluntary dismissals and trials.

We begin at the beginning of the case—the complaint and the response thereto. Among other things, the AO tracks whether the "issue is joined," which the AO defines as the filing of a formal answer to the plaintiff's complaint.[72] The AO data indicate that the issue was joined in 53.67% of comparable civil litigation cases observed from 2005 through 2008. For patent and trademark cases during that period, the percentage of joined cases was slightly higher (56.01%). In the Commonplace copyright cases we observed, the defendant filed an answer in 57.70% of the cases. This is almost exactly the same as that observed in the patent and trademark AO data, and very similar to that observed for comparable civil litigation cases. Accordingly, based on the filing of an answer alone, copyright cases are contested at a similar rate to other types of civil litigation.

Continuing through the life of the case, we find two other ways to measure how contested or difficult litigation becomes. As discussed above, we coded both the number of substantive decisions the court made and the number of docket entries so as to gain insight into each copyright case's intensity. David Hoffman, Alan Izenma, and Jeffery Lidicker's *Docket-ology* study of civil litigation included data on how many lawsuits constituted "difficult cases"—cases with some level of contentiousness or

---

chances of winning decrease by about 66% when filing in those districts). That said, one should not attach too much significance to this finding, because the chances of a plaintiff win are small to begin with, given that most cases terminate without a win for either party.

72. Margo Schlanger, *Inmate Litigation*, 116 HARV. L. REV. 1555, 1595 n.117 (2003).

difficult legal issues.[73] Comparing these two data sets gives us insight into whether copyright cases are similar in intensity and difficulty to other civil cases.

First, the number of substantive decisions. Hoffman et al. coded, as we did, any nonministerial, substantive decisions by the district court in a given case.[74] As Table 15 shows, the percentage of "difficult" or intense copyright cases is almost identical to the percentage the *Docketology* study found in other civil litigation.[75] This would suggest that copyright litigation is no more likely to present "difficult cases" to the courts than other civil litigation.

Table 15: Number of Substantive Decisions Compared

	Hoffman et al., *Docketology* (2007) (n = 980)	**Commonplace Copyright Cases (n = 383)**
"Difficult cases"—cases with at least one substantive decision ("hard order")	49.39%	50.65%
Average number of substantive decisions ("hard orders") per "difficult case"	2.28	4.65

That said, when copyright cases get "difficult," the data indicate that they require a lot more work, and perhaps generate a lot more friction from the parties, than other "difficult" civil cases. As seen in Table 15, the average number of substantive decisions per "difficult case" is much greater in copyright litigation—almost double that observed for other civil cases from the *Docketology* study. This suggests that if a copyright case is difficult, it is really difficult, perhaps because it involves complex legal and factual issues. Or maybe when a copyright litigation gets contentious, it becomes very contentious, and thus requires much more effort to ultimately resolve.

Next, the number of docket entries. As the *Docketology* study notes, this variable is a very crude tool by which to measure case difficulty or intensity across courts, as different courts follow very different practices for

73. *See* Hoffman et al., *supra* note 9, at 710 (defining "difficult" cases as those that contained "hard" orders, which were orders beyond mere "ministerial orders," such as orders on motions for dismissal or summary judgment).

74. *Id.* at 713.

75. *See id.* at 710 (indicating that 484 out of 980 cases contained at least one "hard" order).

numbering entries in their dockets.[76] With that caveat in mind, the comparison does show some differences: *Docketology* observed that about 61.22% of cases had fewer than 15 docket entries,[77] but our Commonplace cases produced a much lower number (26.11%). Therefore, to the extent that the number of docket entries provides an insight, copyright cases appear more difficult or intense than the average civil case.

One final point of comparison emerges at the end of the case, and it too establishes that copyright cases are more contentious then other civil litigation: the percentage of cases going to trial. While we observed a very low percentage of Commonplace trial cases (4.81%), the general litigation AO data for the same period reported only 1.52% of civil cases resulting in a bench or jury trial. This difference, which is statistically significant,[78] is another indicator either that copyright cases involve uncertainties requiring court intervention or that copyright litigants are more willing to push hard. Even patent and trademark cases demonstrated a lower trial percentage of only 2.32%.[79]

Together, these four points of comparison suggest that copyright cases get contentious at a rate similar to that of other civil litigation, and patent and trademark litigation in particular. Within those contentious cases, however, we see statistically significant differences in the number of substantive decisions, the number of docket entries, and the number of trials, indicating that they become more contentious or "difficult" than civil cases more generally. This difference may be due to the fact- or standard-driven nature of copyright law, or perhaps to the complexity of the law in comparison to commonly litigated fields like commercial law.[80] In any event, once a copyright case gets hard, it apparently gets really hard and more difficult to resolve.

3. Termination.—Finally, how and when do copyright cases terminate? The vast majority of Commonplace copyright cases terminated voluntarily, with 80.16% ending in an explicit settlement, agreed judgment, or voluntary dismissal. In comparison, the AO data from 2005 to 2008 reported a voluntary termination rate of 78.05% for comparable civil litigation[81] and 88.48% for patent and trademark. While there is some

---

76. *Id.* at 709.

77. *See id.* (finding that roughly 600 out of 980 cases contained less than 15 docket entries).

78. Pearson's chi-square reports a p-value of < 0.0001.

79. Pearson's chi-square reports a p-value of 0.0174.

80. *See supra* note 63.

81. This does not include those cases in which the type of termination was coded by the AO as "other," because it is unclear in those cases whether the termination was voluntary. Voluntary termination included cases coded by the AO as terminating by settlement, voluntarily, or by consent. Involuntary termination included cases coded as terminating because of lack of jurisdiction, remand, motion before trial, jury verdict, directed verdict, court trial, appeal affirmed from magistrate judge, or appeal denied from magistrate judge. Other studies have reported

variance, particularly when compared to patent and copyright cases, these percentages are close.

Copyright cases, however, take longer to get there. We observed the median pendency of Commonplace copyright cases to be 288 days. The AO reports a median pendency for a comparable civil litigation of 251.[82] The median pendency was also shorter for patent and trademark cases, at 217 days.[83]

So the median Commonplace copyright case took 37 days longer (a little over a month) to terminate than the median comparable civil litigation suit and 61 days longer (about two months) to terminate than patent and trademark cases. In the end, however, copyright cases produce similar results—voluntarily dismissing at a similar rate as other civil cases. These results reinforce those above: copyright cases are simply more difficult to resolve.

B. The Role of Party Size and Industry

Some of the most unexpected data reported in Part III involve party characteristics such as size and industry. The following discussion delves more deeply into those data, revealing some fallacies in common assumptions about copyright litigants and demonstrating that some party characteristics bear a significant relationship to case outcomes.

1. Party Size.—Both the popular literature and scholarly accounts portray major media companies as aggressive drivers of expansive copyright, dominating the landscape and dictating legal outcomes.[84] The litigation data, however, tell a more nuanced tale. Major media companies are certainly active, but only in specific, targeted spheres, and are not as ubiquitous as the size of their copyright portfolios and tales of their

---

different settlement rates, but without knowing the specific methodology for determining what is a "settlement," comparison to our data becomes difficult. *See, e.g.*, Kevin M. Clermont, *Litigation Realities Redux*, 84 NOTRE DAME L. REV. 1919, 1954–55 (2009) (finding a settlement rate of approximately 67%); *see also* Theodore Eisenberg & Charlotte Lanvers, *What is the Settlement Rate and Why Should We Care?*, 6 J. EMPIRICAL LEGAL STUD. 111, 115–19 (2009) (discussing difficulties of defining what dispositions constitute a "settlement").

82. An unpaired *t*-test reports a two-tailed *P* value of 0.0047.

83. An unpaired *t*-test reports a two-tailed *P* value of less than 0.0001.

84. *See, e.g.*, RONALD V. BETTIG, COPYRIGHTING CULTURE: THE POLITICAL ECONOMY OF INTELLECTUAL PROPERTY 38 (1996) (reiterating the scholarly consensus that "six to ten . . . companies—will soon produce, own, and distribute the bulk of the culture and information circulating in the global market"); TRAJCE CVETKOVSKI, COPYRIGHT AND POPULAR MEDIA: LIBERAL VILLAINS AND TECHNOLOGICAL CHANGE 103 (2013) (noting how a small number of major corporations have continued to control copyrights and media consumption and cultivate an anticompetitive market despite modern antitrust legislation); Fiona Macmillan, *Copyright and Corporate Power*, *in* COPYRIGHT IN THE CULTURAL INDUSTRIES 99, 107 (Ruth Towse ed., 2002) (arguing that companies are conglomerating aggressively both horizontally and vertically in order to gain private ownership of copyright interests and cultural output on a global scale).

dominance might suggest. In contrast, smaller firms are surprisingly active, and both small firms and individuals have a statistically significant impact on various case outcome variables.

Start with the big boys. Fortune 1000 firms and their subsidiaries were the largest plaintiffs in 65.52% of the 957 cases we coded, suggesting an active and dominant industry of major media companies.[85] But the vast majority of those cases (512) were File Sharing cases—the routine, cookie-cutter lawsuits that media companies abandoned after 2008. One can therefore safely ignore those cases when discussing today's litigation trends. Of the remaining cases, 60 represented a different kind of cookie-cutter litigation: the Performing Rights lawsuits in which bars and restaurants were accused of failing to pay licenses for public performances of musical works. So 572 of the 628 cases that Fortune 1000 companies filed were what one might call "cost of doing business" cases—where there is infringement to be combated, but it is low-level, and, if the allegations are true, liability is not seriously in doubt. One can add to this category another 15 cases in which leading software companies like Microsoft and Adobe sued small-scale online sellers of pirated software, a similarly formulaic form of repeat litigation.

That said, we observed a few instances of cutting-edge major media litigation, where the allegations, even if true, were hardly routine and did not necessarily establish infringement under current law. For example, there were 2 gray-market importation suits.[86] And some suits in which liability was certain might nonetheless have raised unsettled issues, like the File Sharing cases that involved subpoenas to third-party ISPs[87] or high jury awards for statutory damages.[88] But these were rare exceptions; almost all

---

85. Six companies control 90% of the content in the television, film, radio, and news industries: CBS, Disney, General Electric, News Corp., Time Warner, and Viacom. Ashley Lutz, *These 6 Corporations Control 90% of the Media in America*, BUS. INSIDER (June 14, 2012, 9:49 AM), http://www.businessinsider.com/these-6-corporations-control-90-of-the-media-in-america-2012-6. All are Fortune 1000 companies. We therefore use our "Fortune 1000" category for Party Size as a proxy for major media companies. Such a proxy might capture additional companies as well, but this overinclusiveness is not a problem because our conclusion is that major media is less active than one would expect, not more.

86. These suits should be seen not as run-of-the-mill enforcement cases, but as part of a concerted effort on the part of major media companies to make new law—namely, to establish that copyright law forbids certain unauthorized gray-market imports. Note that this effort ultimately failed. *See* Kirtsaeng v. John Wiley & Sons, Inc., 133 S. Ct. 1351, 1358 (2013) (holding that the "first sale" doctrine protects an importer who purchases foreign versions of textbooks and resells them in the United States from copyright liability).

87. *E.g.*, *In re* Charter Commc'ns, Inc., 393 F.3d 771, 772–73 (8th Cir. 2005) (reversing a subpoena issued by the district court to an Internet service provider to turn over information about subscribers file sharing via peer-to-peer networks). *But see, e.g.*, Capitol Records, Inc. v. Doe, No. 07-cv-1570-JM, 2007 WL 2429830, at *1 (S.D. Cal. Aug. 24, 2007) (granting the plaintiff permission to serve a subpoena on a third-party Internet service provider to turn over information sufficient to reveal the identity of the anonymous defendant).

88. *E.g.*, Sony BMG Music Entm't v. Tenenbaum, 660 F.3d 487 (1st Cir. 2011) (holding that

the major media cases were routine, small-scale efforts to combat clear infringement. For the most part, then, the courtroom is where big media collects the spoils rather than fights the war. With that in mind, perhaps it is no surprise that regression analysis shows that having a Fortune 1000 plaintiff produces at least one statistically significant result: such cases are 164 days shorter on average than other cases.[89]

Another way of measuring the role of major media is to study the defendants it targets in Commonplace cases, as set forth in Table 16. For one thing, major media never files suit against itself; there were no cases in which Fortune 1000 companies were adversaries. An even more surprising finding is that only 5.48% of the cases involved a Fortune 1000 plaintiff against an individual defendant (the Goliath v. David cases)—and the opposite proposition (David v. Goliath) occurred just as often, if not slightly more (6.01%).[90]

Table 16: Face-Offs—Who Sues Whom?
Commonplace Cases (*n* = 383)

Fair Fights—Both Parties Are:	Fortune 1000	0.0%
	Small Firm	50.91%
	Individual	3.13%
	TOTAL	54.05%
Goliath v. David (Fortune 1000 v. Individual)		5.48%
David v. Goliath (Individual v. Fortune 1000)		6.01%

This is not to say that the influence of major media companies in copyright law has necessarily been exaggerated. Our study focuses on filed cases only, and industry power clearly enables major media companies to resolve many disputes without filing suit.[91] And their influence over domestic legislation and international policymaking is well documented.[92]

---

it was reversible error for a district court to reduce statutory damages under the due process clause with a motion for remittitur pending); Capitol Records, Inc. v. Thomas-Rasset, 692 F.3d 899 (8th Cir. 2012) (affirming damages of $222,000 for twenty-four infringements).

89. *See infra* Appendix B, Regression 3. At a confidence level of 95%, the overall range is 21.34 to 306.21 days shorter, with 163.77 as the midpoint. Note that this regression—like all the regressions we performed—controls for the industry of the parties, the number of parties, the size of the parties, the number of works at issue, whether it was an intra-industry dispute, whether the works are high authorship, whether the author is a plaintiff, and whether the case was filed in the two hottest districts.

90. The two figures have a margin of error of ±2.25% and ±2.35% respectively.

91. *See, e.g.*, Gibson, *supra* note 11, at 890–91 (highlighting the nearly universal practice among major media companies of acquiring licenses from copyright holders prior to using copyrighted works, rather than relying on fair use doctrine).

92. *See, e.g.*, JESSICA LITMAN, DIGITAL COPYRIGHT 36 (2001) (explaining how the 1909 Copyright Act, and nearly every subsequent incarnation of the Copyright Act since, relied on

But outside the File Sharing and Performing Rights context, they rarely exercise this power in court.[93]

Who does go to court? Small firms. Setting aside the bygone File Sharing cases, small firms are far and away the most common litigants, constituting the largest plaintiff 55.73% of the time and the largest defendant 73.93% of the time.[94] Indeed, Table 16 reveals that half of the Commonplace cases involve small firms as both the biggest plaintiff and the biggest defendant. Moreover, not only are small firms ubiquitous, but regression analysis reveals that when a small firm is the largest plaintiff, the chances that the defendant will win the case decline by more than 70%.[95]

Individuals, too, have a measurable impact on certain litigation outcomes, but here the story is what one would expect. For example, when the largest plaintiff is an individual, the chances of an adversarial termination increase by a factor of 3.61.[96] Of course, that finding alone does not tell us which party prevails, but a separate regression reveals that when the largest plaintiff is an individual, the chances of a defendant win increase sixfold.[97] This is an unsurprising finding: when an individual plaintiff files a case, he or she will be facing a bigger defendant (either a small firm or a Fortune 1000 company) about 85% of the time, and a disparity of resources may follow.

There is, however, another possible explanation for the lack of success of individual plaintiffs: they may be too attached to the copyrighted work and thus may fail to dispassionately evaluate their chances of success in litigation. Research suggests that when individuals own the copyright to a work, they experience an endowment effect that causes them to value the copyright at a level higher than an objective assessment would merit—and

---

"interindustry negotiations" and was shaped largely by predominating industry interests).

93. Note also that the Fortune 1000 classification was the only Party Size category that had no statistically significant relation to our various measures of case process and outcome—e.g., whether the case terminated with an adversarial ruling, whether the chances of a plaintiff win or defendant win increased, how long the case lasted, and so forth. As discussed below, the other two Party Size categories (Small Firm and Individual) had some significant relation to at least one of these variables.

94. These figures change to 64.23% and 72.06% if we count Commonplace cases only. Keep in mind that "Small Firm" refers to any party that is not a Fortune 1000 company or an individual. *See supra* note 21.

95. *See infra* Appendix B, Regression 1. The relative-risk ratio is 0.26 (meaning that the defendant's chances of winning decrease by 74%), and this result is significant at a confidence level of 99%. Nevertheless, one should not attach too much significance to this finding, because the chances of a defendant win are small to begin with, given that most cases terminate without a win for either party.

96. Valid at a 99% confidence level. *See infra* Appendix B, Regression 4.

97. The relative-risk ratio is 6.11 and the confidence level is 99%. *See infra* app. B, Regression 2. Keep in mind that the chances of a defendant win are small to begin with, so a sixfold increase may not be large in an absolute sense.

this inflated value is due, at least in part, to an ownership bias.[98] The presence of nonindividuals in the plaintiff group may help mute any such tendency, resulting in fewer bad cases being filed.

One final variable helps us explore the endowment effect theory: whether the author of an allegedly infringed work is one of the plaintiffs (not necessarily the largest), which is true in 81.72% of the Commonplace lawsuits. Regression analysis shows that the presence of this factor decreases the chances that the plaintiff will prevail by about 70%.[99] This finding is consistent with research that finds an even stronger endowment effect for those who create copyrighted works, as opposed to those who merely own them.[100]

2. Party Industry (High-IP and Low-IP).—Our analysis concludes with an exploration of another surprising finding: the prevalence of low-IP industries and works in copyright litigation. In the Commonplace category, the industry that is the most common plaintiff and most common defendant is Apparel/Fashion/Textiles, at 13.58% on both lists. Architecture and Industrial Design also rank high.[101] (Recall that we saw similar results in the Subject Matter classification, where Apparel/Fashion/Textiles, Architectural Works, and Industrial Design combined to make up almost 30% of all litigated works in Commonplace cases.)[102]

The conventional wisdom is that these industries operate at copyright's periphery—thus the low-IP label. Apparel is famously difficult to protect under copyright law,[103] and industrial design and architectural works are

98. *See* Christopher Buccafusco & Christopher Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1, 27 (2010) (finding that both regret aversion—the desire to avoid feeling unhappy if one's choice produces an undesirable result—and optimism or ownership bias—the tendency to value things associated with oneself more highly—distinctly contribute to the valuation asymmetries inherent to the endowment effect). Note, however, that the potency and validity of endowment effects generally has recently come under fire. *See* Gregory Klass & Kathryn Zeiler, *Against Endowment Theory: Experimental Economics and Legal Scholarship*, 61 UCLA L. REV. 2, 6 (2013) (asserting that "the best available evidence" no longer supports the "generic" application of the endowment effect).

99. *See infra* Appendix B, Regressions 1 & 2. As explained previously, see *supra* note 71, we ran two regressions with Winning Party as the dependent variable, but both produced statistical significance at the 95% confidence level and a relative-risk ratio of about 0.30. Again, remember that the chances of a plaintiff win are always small, so a 70% decrease may not be as large as it first appears.

100. *See* Buccafusco & Sprigman, *supra* note 7, at 31. Another interpretation of this data is that U.S. copyright law does a poor job of protecting moral rights—i.e., vindicating the special connection that authors have to their creative works. (We are indebted to Justin Hughes for pointing this out.)

101. For the complete rundown, see *supra* Tables 3 & 4.

102. *See supra* Table 5.

103. *See, e.g.*, Raustiala & Sprigman, *supra* note 10, at 1700 (discussing how copyright law does not protect various creative elements of apparel, such as the "cut of a sleeve, [or] the shape of a pant leg").

likewise hampered by functionality constraints and other exceptions to copyright's usual reach.[104] Yet all three are among the leading industries in everyday copyright litigation. This suggests a level of litigation disproportionate to the value of the copyrights being litigated.

Of course, the lists also feature less surprising industries at the top, like Software, Music, and Film. And there is a lot of clustering: on both lists, each industry is within the margin of error of at least one other. Therefore, to get more of a sense of the overall balance between low-IP and high-IP industries, we converted the industry field into a single binary variable: Core/Non-Core. This is a common practice among those examining the economic impact of copyright-based industries, and we followed the usual conventions by classifying as Core the following high-IP industries: Advertising and Marketing, Commercial Arts, Film and TV, Fine Arts, Music, Performing Arts, Publishing, and Software.[105]

The results of this second-order coding appear in Table 17. One can see that the largest plaintiff in a lawsuit is almost as likely to be from outside the Core copyright industries (45.17%) as inside (54.83%); indeed, the difference is within the margins of error (±4.98% for both figures). The largest defendant is actually slightly more likely to be from a Non-Core industry (54.31%) than Core (45.69%), although the results are again within the margins of error (±4.99% in both instances).

---

104. Until 1990, architectural works (except as two-dimensional blueprints) were considered almost completely uncopyrightable under U.S. law. *See* Todd Hixon, Note, *The Architectural Works Copyright Protection Act of 1990: At Odds with the Traditional Limitations of American Copyright Law*, 37 ARIZ. L. REV. 629, 629 n.2 (1995) (observing that copyright protection attached to architectural works prior to 1990 only if the structure's "monumental or sculptural qualities" so surpassed its use and function as to render it a "pictorial, graphic or sculptural work"). Even after 1990, architectural works have continued to be subject to certain specific limitations not applicable to other works. *See, e.g.*, 17 U.S.C. § 120(a) (2012) (permitting the making and distribution of pictorial representations of otherwise copyrighted architectural works so long as the work is "located in or ordinarily visible from a public place"). Other works of industrial design are similarly limited, most significantly by the useful article doctrine. *See, e.g.*, 17 U.S.C. § 101 (defining a "useful article" as an article that has an "intrinsic utilitarian function that is not merely to portray the appearance of the article or to convey information"); Alfred C. Yen, *Copyright Opinions and Aesthetic Theory*, 71 S. CAL. L. REV. 247, 275 (1998) (noting that the useful article doctrine was "the result of administrative, legislative, and judicial decisions to deny copyright protection to works of industrial design even if they are aesthetically valuable").

105. This definition follows the well-known World Intellectual Property Organization (WIPO) guidelines. *See* WORLD INTELLECTUAL PROP. ORG., GUIDE ON SURVEYING THE ECONOMIC CONTRIBUTION OF THE COPYRIGHT-BASED INDUSTRIES 28–29 (2003) (defining "core copyright industries" according to the following overarching categories: "press and literature;" "music, theatrical productions, operas;" "motion picture and video;" "photography;" "software and databases;" "visual and graphic arts;" "advertising services;" and "copyright collective management societies"). Prominent economic studies that use the WIPO definition, or an even narrower one, include: ECON. & STATISTICS ADMIN. & U.S. PATENT AND TRADEMARK OFFICE, INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: INDUSTRIES IN FOCUS (2012), and STEPHEN E. SIWEK, COPYRIGHT INDUSTRIES IN THE U.S. ECONOMY: THE 2011 REPORT (2011). Such studies sometimes depart from the WIPO guidelines at the margins, but not over issues that impact our data.

Table 17: Core/Non-Core Industries
Commonplace Cases (n = 383)

Industry of Largest Plaintiff	Core	54.83%
	Non-Core	45.17%
Industry of Largest Defendant	Core	45.69%
	Non-Core	54.31%

We also combined the industry data to see how often a dispute occurred between parties of the same industry. As Table 18 shows, such intra-industry disputes occurred in 74.15% of Commonplace cases—a high figure, given that the coding used seventeen different industry classifications. Reducing those classifications to just Core and Non-Core reveals that disputes are just as likely to occur within Non-Core industries (43.34%) as within Core (43.86%).

Table 18: Intra- and Extra-Industry Disputes
Commonplace Cases (n = 383)

Intra-Industry	74.15%
Extra-Industry	25.85%
Core v. Core	43.86%
Non-Core v. Non-Core	43.34%
Total	87.20%

These findings have two implications. First, low-IP industries may litigate copyright issues at a disproportionately high rate precisely because they are low-IP. Legal outcomes are less certain for industries and works at the periphery of copyright law, and litigation is one way to reduce that uncertainty. And low-IP, Non-Core industries are probably more diffuse and less homogenous, such that filing suit may perform an important communications function—a clear signal that an unfamiliar plaintiff is serious. In contrast, Core copyright industries are more likely to comprise a small number of repeat players who are accordingly more able to resolve disputes before suits get filed. (Consider again the concentration of copyright ownership in major media companies.) And Core industries presumably also experience less uncertainty about copyright law, reserving their litigation resources for the kinds of cookie-cutter, cost-of-doing-business cases not reflected in the surprisingly diverse Commonplace category.

Second, the prevalence of low-IP industries and works in copyright litigation highlights the importance of limiting doctrines in copyright law.

The clothing cases tend to involve copyrights in simple, two-dimensional patterns, which the rightholder deploys to sue manufacturers and retailers galore. Perhaps that is as it should be, but it highlights the importance of both aspects of copyright's originality requirement: (1) the low threshold for creativity and (2) the need to prove that the creativity is the author's own, rather than a copy of a preexisting work, as many of the clothing patterns probably resemble something that has been done before.[106] Both researcher and practitioner might also be well-advised to become more familiar with "thin" theories of infringement analysis applicable in a low-IP context, such as those requiring "virtual identity" rather than "substantial similarity" to prove infringement.[107]

Likewise, the primacy of industrial design and architecture cases suggests attention to limiting doctrines. The useful article doctrine is not just an academic concept that helps students learn the difference between patent and copyright; it has a real importance to everyday litigation. And mechanisms like the idea/expression dichotomy, fact/expression dichotomy, merger doctrine, and other limitations on functional goods[108] assume importance outside the software context.

V. Conclusion

Our study represents a first step in the direction of a more robust, empirically accurate understanding of what copyright looks like in the courtroom. Our results show that copyright litigation differs in some significant ways from other litigation and that it also varies from what copyright experts might expect. We hope that this data will inform the ongoing conversation about the direction of copyright law and provide a basis for future research along the same lines.

---

106. *See* Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) (discussing the two aspects of copyright's originality requirement and emphasizing both that the creativity threshold is "extremely low" and "even a slight amount [of creativity] will suffice").

107. *See, e.g.*, Satava v. Lowry, 323 F.3d 805, 812 (9th Cir. 2003) (granting a sculptor a "thin" copyright in realistic sculptures of jellyfish in so far as the sculpture's artistic characteristics were not influenced by jellyfish physiology, and holding that infringement of such a copyright requires "virtually identical copying"); Ets-Hokin v. Skyy Spirits, Inc., 323 F.3d 763, 764–66 (9th Cir. 2003) (holding that a photographer's copyright in commercial photographs of a blue vodka bottle was "thin" and therefore limited to "virtual identical copying").

108. *See, e.g.*, Harper House, Inc. v. Thomas Nelson, Inc., 889 F.2d 197, 205 (9th Cir. 1989) (holding that factual compilations or compilations consisting of "uncopyrightable elements" receive limited protection and that infringement of such works requires "bodily appropriation of expression" (internal quotation marks omitted)).

Appendix A: Coded Fields

Coded Field	Data Type/Categories
Case Name	Alphanumeric
Filing Date	Date
Court	Alphanumeric
Judge	Alphanumeric
No. of Plaintiffs	Numeral
No. of Defendants	Numeral
No. of "Doe" Defendants	Numeral
File-Sharing Suit?	Binary
Performing Rights Organization Suit?	Binary
Subject Matter	Literary—Industry Publications Literary—Books/Newspapers/Journals Literary—Software Literary—Other Musical Dramatic Pantomimes & Choreographic PGS—Apparel/Fashion/Textiles PGS—Commercial Art PGS—Fine Art PGS—Industrial PGS—Other Motion Pictures & Other Audiovisual Sound Recordings Architectural Multiple—Musical and Sound Recording Multiple—Website Multiple—Other
High Authorship?	Binary
No. of Works at Issue	Numeral
Plaintiff Author?	Binary
Size of Plaintiff **Size of Defendant**	Fortune 1000 (or subsidiary) Small Firm Individual

Coded Field	Data Type/Categories
Industry of Plaintiff **Industry of Defendant**	Film and TV Music Publishing Software—Video Games Software—Other Advertising and Marketing Apparel/Fashion/Textiles Architecture Commercial Art Fine Arts Individual Industrial Design Performing Arts Food & Drink Public Sector Other—Retail/Wholesale/Durable Goods Other—Professional/Scientific/Technical Other—Misc.
Type of Suit	Fed. Copyright Infringement Only Fed. and State Copyright Infringement State Copyright Infringement Only Ownership Dispute (Federal and/or State) Other
Declaratory Judgment?	Binary
Foreign	No Foreign Claim Foreign Copyright Infringement Foreign Moral Rights Both Foreign Copyright and Moral Rights
Section 106(1) Claim?	Binary
Section 106(2) Claim?	Binary
Section 106(3) Claim?	Binary
Section 106(4) Claim?	Binary
Section 106(5) Claim?	Binary
Section 106(6) Claim?	Binary
Section 106A Claim?	Binary
DMCA Claim?	Binary
Secondary Liability Claim?	Binary

Coded Field	Data Type/Categories
Trademark Claim?	Binary
Contract Claim?	Binary
Additional Claim(s)?	Binary
Counterclaim(s) and/or Cross-Claim(s)?	Binary
Plead Damages	Statutory—Willful Statutory—Regular Statutory—Innocent Actual Damages None
Plead Injunction?	Binary
Answer Filed?	Binary
Consolidated or Transferred?	Binary
Motion Filed	Summary Judgment 12(b)(6) Motion 12(c) Motion JNOV Default Judgment Lack of Jurisdiction Other Dismissal TRO/Preliminary Injunction Multiple of the Above None of the Above
Trial	Yes, and no JNOV Filed No Yes, and JNOV Granted Yes, and JNOV Denied
Termination Type	Trial Summary Judgment 12(b)(6) Dismissal 12(c) Dismissal JNOV Default Judgment Lack of Jurisdiction Settlement Agreed Judgment Voluntary Dismissal Other Dismissal Still Open

Coded Field	Data Type/Categories
Winning Party	Plaintiff(s) Defendant(s) Neither/Agreed Judgment
Termination Date	Date
Outcome Damages	Statutory—Willful Statutory—Regular Statutory—Innocent Actual Damages > 0 (but can't tell more) Agreed Damages None
Outcome Injunction	Yes No Agreed Injunction
No. of Docket Entries	Numeral
No. of Substantive Decisions	Numeral

Appendix B: Regressions

Regression 1: Winning Party (Plaintiff as Small Firm)

Multinomial Logistic Regression		LR chi^2 (24) = 62.87	
Number of Observations = 377		Prob. > chi^2 = 0.0000	
Log Likelihood = −175.24331		Pseudo R^2 = 0.1521	

Winning Party	RRR	Std. Err.	z	P > |z|	95% Conf.	Interval
Defendant						
P Industry	.4515904	.311825	−1.15	0.250	.1166774	1.747844
D Industry	1.208421	.8050844	0.28	0.776	.3274341	4.459775
P = Small Firm?	.2620272	.1366195	−2.57	0.010	.0943049	.728045
Defendant Size: 2	.6263944	.4598092	−0.64	0.524	.1485995	2.640452
Defendant Size: 3	.4105019	.2304616	−1.59	0.113	.1365961	1.23365
High Authorship?	1.420268	.6987514	0.71	0.476	.5414912	3.725197
Intra-Industry?	.9508619	.4672255	−0.10	0.918	.3629628	2.490995
No. Plaintiffs	1.119019	.1280614	0.98	0.326	.8941806	1.400392
No. Non-Doe Defendants	1.089563	.0451487	2.07	0.038	1.004571	1.181745
No. Works	.9644603	.0290061	−1.20	0.229	.9092525	1.02302
P = Author?	4.519685	4.913307	1.39	0.165	.5367538	38.05759
C.D. Cal/SDNY	.5254648	.2890864	−1.17	0.242	.1787524	1.544668
Neither	(base outcome)					
Plaintiff						
P Industry	.3719349	.2677939	−1.37	0.170	.0906985	1.525224
D Industry	1.373708	.9454388	0.46	0.645	.3565043	5.293271
P = Small Firm?	.5087637	.2462818	−1.40	0.163	.1970005	1.313908
Defendant Size: 2	4689879	4.14e+09	0.02	0.986	0	.
Defendant Size: 3	2539597	2.24e+09	0.02	0.987	0	.
High Authorship?	.9762983	.4338871	−0.05	0.957	.4085931	2.332782
Intra-Industry?	1.079488	.5700226	0.14	0.885	.3834791	3.038743
No. Plaintiffs	.9912013	.0511899	−0.17	0.864	.8957816	1.096785
No. Non-Doe Defendants	.9519452	.0877568	−0.53	0.593	.7945888	1.140464
No. Works	1.004684	.0035991	1.30	0.192	.9976544	1.011763
P = Author?	.2972404	.1435951	−2.51	0.012	.115318	.7661581
C.D. Cal/SDNY	.3378337	.178836	−2.05	0.040	.1197044	.9534454

Regression 2: Winning Party (Plaintiff as Individual)

Multinomial Logistic Regression		LR chi^2 (24) = 62.02
Number of Observations = 377		Prob. > chi^2 = 0.0000
Log Likelihood = -173.17161		Pseudo R^2 = 0.1621

Winning Party	RRR	Std. Err.	z	P > |z|	95% Conf.	Interval
Defendant						
P Industry	.4835872	.355439	−0.99	0.323	.1145084	2.042265
D Industry	1.565449	1.101145	0.64	0.524	.3943657	6.214105
P = Individual?	6.112852	3.19189	3.47	0.001	2.196747	17.01014
Defendant Size: 2	.935546	.6901411	−0.09	0.928	.2203657	3.971791
Defendant Size: 3	.482577	.27386	−1.28	0.199	.158677	1.467639
High Authorship?	.8201587	.4634445	−0.35	0.726	.2709643	2.482468
Intra-Industry?	.9613925	.4777782	−0.08	0.937	.3629807	2.546349
No. Plaintiffs	1.198717	.1372954	1.58	0.114	.9576878	1.500407
No. Non-Doe Defendants	1.087402	.0453143	2.01	0.044	1.002118	1.179944
No. Works	.9577102	.0299122	−1.38	0.167	.9008417	1.018169
P = Author?	3.519037	3.885952	1.14	0.255	.4040836	30.64619
C.D. Cal/SDNY	.5317477	.2976412	−1.13	0.259	.1775223	1.592789
Neither	(base outcome)					
Plaintiff						
P Industry	.3939316	.282928	−1.30	0.195	.0963994	1.609783
D Industry	1.699362	1.131693	0.80	0.426	.4607087	6.268234
P = Individual?	1.125516	.6443712	0.21	0.836	.3664617	3.456803
Defendant Size: 2	2159755	1.16e+09	0.03	0.978	0	.
Defendant Size: 3	1016597	5.46e+08	0.03	0.979	0	.
High Authorship?	1.010016	.4670874	0.02	0.983	.4080241	2.500179
Intra-Industry?	.9504486	.4891109	−0.10	0.921	.3466501	2.605949
No. Plaintiffs	1.002409	.0488727	0.05	0.961	.9110544	1.102924
No. Non-Doe Defendants	.9414298	.0871142	−0.65	0.514	.785277	1.128634
No. Works	1.004744	.0040161	1.18	0.236	.9969038	1.012647
P = Author?	.3078759	.149652	−2.42	0.015	.1187475	.7982278
C.D. Cal/SDNY	.3408466	.1800397	−2.04	0.042	.121044	.95978

Regression 3: Pendency of Case (Number of Days)

Source	SS	*df*	MS
Model	3973067.22	12	331088.935
Residual	59510065.2	364	163489.19
Total	63483132.4	376	168838.118

Number of Observations = 377
F (12, 364) = 2.03
Prob. > F = 0.0213
R^2 = 0.0626
Adj R^2 = 0.0317
Root MSE = 404.34

Pendency Days	Coefficient	Std. Err.	*t*	P > |*t*|	95% Conf. Interval	
P Industry	66.02923	76.16818	0.87	0.387	−83.7557	215.8142
D Industry	25.39834	71.6561	0.35	0.723	−115.514	166.3102
P = F1000?	−163.773	72.43212	−2.26	0.024	−306.211	−21.3351
Defendant Size: 2	59.29194	87.34895	0.68	0.498	−112.48	231.0639
Defendant Size: 3	88.85074	65.69757	1.35	0.177	−40.3437	218.0452
High Authorship?	−16.60375	49.93402	−0.33	0.740	−114.799	81.59163
Intra-Industry?	68.82886	54.9465	1.25	0.211	−39.2236	176.8813
No. Plaintiffs	3.110344	5.82042	0.53	0.593	−8.33553	14.55622
No. Non-Doe Defendants	17.21604	6.046507	2.85	0.005	5.325567	29.10651
No. Works	.1208949	.1068845	1.13	0.259	−.089294	.3310836
P = Author?	58.44578	59.00443	0.99	0.323	−57.5866	174.4781
C.D. Cal/SDNY	−44.53646	46.19138	−0.96	0.336	−135.372	46.29901
[Constant]	183.1448	107.4053	1.71	0.089	−28.0680	394.3575

Regression 4: Adversarial Termination

Logistic Regression				LR chi^2 (12) = 28.76		
Number of Observations = 377				Prob. > chi^2 = 0.0043		
Log Likelihood = −131.26709				Pseudo R^2 = 0.0987		
Termination	**Odds Ratio**	**Std. Err.**	**z**	**P > |z|**	**95% Conf. Interval**	
P Industry	.4115909	.2280665	−1.60	0.109	.1389334	1.21934
D Industry	1.507568	.7992939	0.77	0.439	.5333106	4.261607
P = Individual?	3.614075	1.419094	3.27	0.001	1.674043	7.802393
Defendant Size: 2	.9983345	.5977264	−0.00	0.998	.3087746	3.227829
Defendant Size: 3	.667969	.3111197	−0.87	0.386	.2680973	1.664256
High Authorship?	.9236191	.3740652	−0.20	0.844	.4175965	2.042815
Intra-Industry?	.9266835	.3589774	−0.20	0.844	.4337048	1.980016
No. Plaintiffs	1.023399	.0398336	0.59	0.552	.9482307	1.104527
No. Non-Doe Defendants	1.059632	.0390154	1.57	0.116	.9858571	1.138927
No. Works	1.001435	.0008754	1.64	0.101	.9997211	1.003153
P = Author?	1.784566	1.050091	0.98	0.325	.563197	5.654637
C.D. Cal/SDNY	.5345003	.2178181	−1.54	0.124	.2404743	1.18803

* * *

Trademark Surveys: An Undulating Path

Shari Seidman Diamond* & David J. Franklyn**

Introduction

When a plaintiff alleges trademark infringement or claims that false advertising is likely to confuse or deceive, the pivotal legal question is: how are consumers likely to perceive the mark or advertising?[1] In the early days of trademark litigation, a parade of consumer witnesses, carefully selected by one of the parties to support a trademark claim, would testify about their reactions to a mark.[2] That approach has given way to systematic survey evidence reflecting the responses of a substantial number of consumers selected according to an explicit sampling plan, asked the same questions, and unaware who sponsored the survey.[3]

A consumer survey that measures consumer confusion is an effective way to ensure that trademark infringement cases are decided based on empirical facts about likely consumer confusion instead of on judicial assumptions about how consumers are likely to respond. Assume, for example, that McDonald's Corporation sues a third party that expresses a plan to start a chain of motels called "McSleep Inns."[4] The attempt to free ride on the good will of the "Mc" family of marks may be obvious, but are consumers really likely to think that the motel chain is associated with McDonald's? The answer may be yes; but it may be no, depending on the

---

* Howard J. Trienens Professor of Law and Professor of Psychology, Northwestern University; Research Professor, American Bar Foundation. We thank Barton Beebe, Jeremy Sheff, and Jerre B. Swann for helpful comments on the manuscript.

** Professor, Director of the LL.M. program in IP and Technology Law, and Director of the McCarthy Institute for IP and Technology Law, University of San Francisco School of Law.

1. 6 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 32:158 (4th ed. 2014) ("To an extent not true in other fields of law, in trademark and false advertising disputes the perceptions of large groups of ordinary people are key factual issues.").

2. *See* Aloe Creme Labs., Inc. v. Milsan, Inc., 423 F.2d 845, 850 (5th Cir. 1970) (holding that eight consumer witnesses were not enough to establish secondary meaning); Premier-Pabst Corp. v. Elm City Brewing Co., 9 F. Supp. 754, 760 (D. Conn. 1935) ("[I]ndividual members of the purchasing public are frequently called as witnesses and questioned as to their mental reactions . . . . [B]ut in view of the fact that modern advertising reaches millions, the chancellor, though he hear a hundred witnesses, can never know whether he has been shown a fairly representative picture.").

3. Shari Seidman Diamond, *Reference Guide on Survey Research*, *in* REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 359, 372 (3d ed. 2011).

4. This hypothetical is based on an actual case. *See generally* Quality Inns Int'l, Inc. v. McDonald's Corp., 695 F. Supp. 198 (D. Md. 1988) (discussing the use of survey evidence to assess consumer confusion in a trademark dispute over a chain of motels called "McSleep Inns").

facts and circumstances of the planned third-party use. A well-crafted survey can help answer this question in a way that grounds trademark law in fact, rather than conjecture.

Some courts have described surveys as the most direct form of evidence that can be offered on the consumer perception questions at issue in trademark and deceptive advertising litigation,[5] but several scholars have questioned the role that surveys actually play in trademark cases.[6] These authors have based their conclusions on reviews of published court decisions in cases of alleged trademark infringement.[7] Here, we take a larger view, examining not only varieties of trademark litigation beyond infringement (e.g., false advertising and dilution), but also investigating (via a survey!) how attorneys in the United States and internationally use surveys in trademark litigation. We also identify reasons why many reported cases do not contain survey evidence even when a survey would be valuable in supporting or refuting a claim.

The attorney survey we conducted for this Article enables us to examine how trademark surveys are used not only in cases that find their way to courtroom dispositions, but also in cases that are disposed of in the earlier nonpublic stages of litigation and thus do not result in a published court opinion. The International Trademark Association permitted us to invite its members to participate in a survey to assess when, if ever, and under what circumstances attorneys commission trademark surveys and what role the surveys play in the course of litigation.[8] Our results indicate that trademark surveys often play multiple important roles in the life of a trademark case. Moreover, these attorney responses reveal the con-

---

5. *See, e.g.*, Tone Bros. v. Sysco Corp., 28 F.3d 1192, 1204 (Fed. Cir. 1994) (quoting Co-Rect Prods., Inc. v. Marvy! Adver. Photography, Inc., 780 F.2d 1324, 1333 n.9 (8th Cir. 1985)) ("Consumer surveys are recognized by several circuits as the most direct and persuasive evidence of secondary meaning."); Malaco Leaf, A.B. v. Promotion in Motion, Inc., 287 F. Supp. 2d 355, 379 (S.D.N.Y. 2003) ("When an advertisement is not literally false, but rather is ambiguous or implicitly false, a plaintiff can only establish a claim of false advertising through a survey."); *see also* Schering Corp. v. Pfizer, Inc., 189 F.3d 218, 225 (2d Cir. 1999) ("Surveys are, for example, routinely admitted in trademark and false advertising cases to show actual confusion, genericness of a name or secondary meaning."); Kate Spade LLC v. Saturdays Surf LLC, 950 F. Supp. 2d 639, 647 (S.D.N.Y. 2013) (noting that on the issue of consumer confusion "it has become routine in Lanham Act cases to submit such surveys").

6. *E.g.*, Barton Beebe, *An Empirical Study of the Multifactor Tests for Trademark Infringement*, 94 CALIF. L. REV. 1581, 1641 (2006); Robert C. Bird & Joel H. Steckel, *The Role of Consumer Surveys in Trademark Infringement: Empirical Evidence from the Federal Courts*, 14 U. PA. J. BUS. L. 1013, 1017 (2012).

7. *E.g.*, Beebe, *supra* note 6, at 1641; Bird & Steckel, *supra* note 6, at 1029.

8. The International Trademark Association (INTA) is a global association of trademark owners and professionals dedicated to supporting trademarks and related intellectual property. *About INTA*, INT'L TRADEMARK ASS'N, http://www.inta.org/About/Pages/Overview.aspx. We are very grateful to Lisa Butkiewicz, Managing Editor at INTA, for arranging to send an email to INTA members inviting them to participate.

siderations that come into play in the decision to commission a survey. A closer look at the apparent inconsistency between our results and those of earlier research allows us to assess how pervasive and persuasive surveys are in trademark litigation and to evaluate how pervasive and persuasive they ought to be.

Part I provides a description of the primary legal topics that appear in trademark and deceptive advertising surveys. Part II reviews the recent studies that investigate the presence and influence of surveys in reported infringement decisions, identifying some of the limitations of these studies as a way to describe the role that surveys play in trademark litigation. Part III takes a close look at a sample of the reported cases that did not include survey evidence to begin our assessment of why surveys are or are not submitted in trademark cases. Part IV describes our survey, including a description of our methodology (the full survey instrument appears in an Appendix), questions, and results. Part V offers an explanation of why surveys may be underrepresented in reported cases, and when surveys succeed and fail as persuasive evidence. We analyze the limitations of survey methodology in current trademark litigation identified by our respondents, as well as judicial reactions to surveys that provide clues to the ambivalence of some judges to the surveys presented in court.

I. Trademark Law and Survey Overview

To provide a framework for the results of our empirical research, we begin with a description of trademark law. We describe the primary legal issues that surveys may be used to address in the course of litigation on trademarks and deceptive advertising.

A trademark is a "word, phrase, symbol or design, or a combination . . . [thereof] that identifies and distinguishes the source of the goods of one party from those of others."[9] Trademarks were traditionally limited to conventional word marks or image marks,[10] but trademark application has been expanded to include colors,[11] sounds,[12] and even smells.[13] The mark, coupled with its associated goodwill, constitutes a

9. *Trademark, Copyright or Patent?*, U.S. PAT. & TRADEMARK OFF., http://www.uspto.gov/trademarks/basics/trade_defin.jsp; *see also* 15 U.S.C. § 1127 (2012) (stating a similar definition, but using the word "device" rather than the USPTO's use of the word "design").

10. *See, e.g.*, Kenneth L. Port, *On Nontraditional Trademarks*, 38 N. KY. L. REV. 1, 17 (2011) (discussing the historical development of trademark law and noting that trademarks had "almost exclusively meant design marks" and did not include nontraditional trademarks such as colors).

11. Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 171–73 (1995).

12. 1 MCCARTHY, *supra* note 1, § 7:104.

13. *Id.* § 7:106.

valuable form of intellectual property that may be listed as an asset, licensed, assigned, sold, and taxed.[14]

It is useful to think of a trademark as requiring three elements, constituting what Barton Beebe has called "the triadic structure of the trademark"[15]: (1) the perceptible symbol; (2) the type of use: "the trademark must be used . . . [by the source] to refer to goods or services"; and (3) the function: the trademark must "'identify and distinguish [the manufacturer's] or seller's goods from goods made or sold by others.'"[16] If consumers do not see the connection between the mark and the source of the products or services, the third prong of this relational system is not met. Two central tasks for trademark surveys are to test whether consumers connect a mark with goods or services from a particular source and to test the extent to which that connection is distinctive.[17]

A. Trademark Questions and Survey Evidence

1. Generic Marks.—Unless a mark is viewed as distinctively signaling a particular source of goods or services, it cannot be protected as a trademark.[18] Thus, a mark that identifies a category of product or service rather than a particular brand or source is not eligible as a trademark.[19] These marks are characterized as generic. When a symbol refers to a product category, competitors may be disadvantaged if they cannot use the term to refer to their own goods or services, and consumers may be deprived of a useful way to reduce search costs. To avoid interfering with the efficient market operation, such a generic mark is not entitled to trademark protection.[20]

It can be a major point of contention as to whether a mark is viewed as a brand name or the name of a product category (i.e., generic), particularly when some consumers use the name of a prominent brand to refer to the product or service. Not surprisingly, trademark owners engage in vigorous efforts to distinguish their brand name (e.g., KLEENEX) from the product

---

14. *Id.* § 2:21.

15. Barton Beebe, *The Semiotic Account of Trademark Doctrine and Trademark Culture*, *in* TRADEMARK LAW AND THEORY: A HANDBOOK OF CONTEMPORARY RESEARCH 42, 45 (Graeme B. Dinwoodie & Mark D. Janis eds., 2008).

16. *Id.* at 45–46.

17. *See infra* subpart I(B).

18. See generally Jerre B. Swann, *Genericism Rationalized*, 89 TRADEMARK REP. 639 (1999), for a discussion of genericism and trademark infringement.

19. 2 MCCARTHY, *supra* note 1, § 12:1 ("A mark answers the buyer's questions 'Who are you? Where do you come from?' 'Who vouches for you?' But the [generic] name of the product answers the question 'What are you?'").

20. *Id.* ("In short, a generic name of a product can never function as a trademark to indicate origin.").

category (facial tissues), but they are not always successful.[21] If consumer use changes, a mark that began its life as a brand name may become generic over time (e.g., cellophane[22] and aspirin[23]). Surveys aimed at assessing consumer understanding and use of marks have provided relevant evidence in determining whether a mark is generic since surveys were introduced in a 1962 case to assess whether the mark THERMOS was generic.[24]

2. Secondary Meaning.—The traditional "spectrum of distinctiveness" differentiates between marks that are deemed "inherently distinctive" and marks that are merely descriptive.[25] Inherently distinctive marks are "suggestive," "arbitrary," or "fanciful" in nature and generate trademark protection automatically upon their use.[26] Fanciful marks are generally made up words created for the sole purpose of trademark or brand identification.[27] Arbitrary marks are words that exist in language but are used in an unrelated context.[28] Finally, suggestive marks include words that exist in language and have a generally understood meaning that is somewhat related to the product[29] but still require some imagination, thought, or "mental leap."[30]

In contrast to inherently distinctive marks, descriptive marks "are merely descriptive of a product [and] are not inherently distinctive."[31] As their classification implies, merely descriptive marks describe the type of product or service and the Supreme Court has held that as such "they do not inherently identify a particular source, and hence cannot be protected."[32] While the general rule is that a "merely descriptive" mark cannot obtain

---

21. *See, e.g.*, Pilates, Inc. v. Current Concepts, Inc., 120 F. Supp. 2d 286, 289 (S.D.N.Y. 2000) (holding that "pilates" is generic for a form of exercise).

22. DuPont Cellophane Co. v. Waxed Prods. Co., 85 F.2d 75, 82 (2d Cir. 1936) (holding that "cellophane" was generic for cellulose-based plastic film).

23. Bayer Co. v. United Drug Co., 272 F. 505, 515 (S.D.N.Y. 1921) (holding that "aspirin" was generic for acetylsalicylic acid).

24. Am. Thermos Prods. Co. v. Aladdin Indus., 207 F. Supp. 9, 20 (D. Conn. 1962). For a review of genericness surveys, see E. Deborah Jay, *Genericness Surveys in Trademark Disputes: Under the Gavel*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN 101 (Shari Seidman Diamond & Jerre B. Swann eds., 2012).

25. 2 MCCARTHY, *supra* note 1, § 11:1.

26. *Id.*; Abercrombie & Fitch Co. v. Hunting World, Inc., 537 F.2d 4, 9 (2d Cir. 1976).

27. *E.g.*, KODAK, Registration No. 2,040,245 (cameras); XEROX, Registration No. 3,719,198 (photocopiers).

28. *E.g.*, APPLE, Registration No. 3,928,818 (computers); CAMEL, Registration No. 1,502,414 (cigarettes).

29. *E.g.*, IVORY SOAP, Registration No. 0054,415 (soap); TIDE, Registration No. 4,462,346 (detergent).

30. Self-Realization Fellowship Church v. Ananda Church of Self-Realization, 59 F.3d 902, 911 (9th Cir. 1995) (holding that a mark is not suggestive where "[n]o mental leap is required").

31. Two Pesos, Inc. v. Taco Cabana, Inc., 505 U.S. 763, 769 (1992).

32. *Id.*

trademark protection, it is possible for a descriptive trademark to acquire "secondary meaning" through use in commerce and thereby "acquire the distinctiveness which will allow them to be protected."[33] In essence, the mark holder must show that consumers have come to recognize and accept the mark as denoting only one exclusive source.[34] Thus, if consumers come to associate a descriptive mark with a single source (e.g., WORLD BOOK for an encyclopedia), even if they cannot name the source (e.g., the source of WORLD BOOK is Scott Fetzer, a Berkshire Hathaway subsidiary), the mark can qualify as a source indicator that warrants trademark status.

The question of whether a descriptive mark has achieved secondary meaning is important both in the bulk of litigation that takes place before the Trademark Trial and Appeal Board (TTAB) in office actions to determine whether a descriptive mark qualifies for trademark protection through registration on the Principal Register[35] and in trademark infringement litigation in federal court. Although circumstantial measures are often used to support a claim of secondary meaning (e.g., "amount and manner of advertising" and "volume of sales"), surveys provide direct evidence on the relevant legal question: whether the relevant consuming public has come to identify the mark as denoting source.[36]

3. Likelihood of Confusion.—Trademark law is commonly justified as serving two principal goals: (1) consumer protection and (2) mark owner protection.[37] There is an ongoing and lively debate over the foundations of trademark law,[38] but such matters are well beyond the scope of this Article. Suffice it to say that in terms of consumer protection, trademarks serve the obvious function of preventing consumer deception[39] and the less obvious, but widely accepted, function of reducing consumer search costs.[40]

---

33. *Id.*

34. 2 MCCARTHY, *supra* note 1, § 11:25 ("Trademark protection for descriptive marks is extended only in recognition of consumer acceptance and recognition of such marks as denoting only one seller or source.").

35. 3 *id.* § 19:10 (describing eligibility for the Principal Register).

36. Zatarains, Inc. v. Oak Grove Smokehouse, Inc., 698 F.2d 786, 795 (5th Cir. 1983).

37. 1 MCCARTHY, *supra* note 1, § 2:2 ("Trademark law serves to protect both consumers from deception and confusion over trade symbols *and* to protect the plaintiff's infringed trademark as property.").

38. *See, e.g.*, Mark P. McKenna, *The Normative Foundations of Trademark Law*, 82 NOTRE DAME L. REV. 1839, 1840–41 (2007) (arguing that consumer protection is a secondary goal to mark owner protection). *Contra* Robert G. Bone, *Enforcement Costs and Trademark Puzzles*, 90 VA. L. REV. 2099, 2100 (2004) (arguing that the central function of protecting trademarks is to benefit consumers).

39. 1 MCCARTHY, *supra* note 1, § 2:4 ("Trademarks fix responsibility. Without marks, a seller's mistakes or low quality products would be untraceable to their source.").

40. Kraft Foods Grp. Brands LLC v. Cracker Barrel Old Country Store, Inc., 735 F.3d 735, 739 (7th Cir. 2013) ("A trademark's value is the saving in search costs made possible by the

Trademarks come to function as representations of manufacturer quality assurance, and thus consumers use them as shortcuts to rapidly identify and purchase the types of goods they want without having to research them. In authorizing federal actions for trademark infringement,[41] Congress enabled the federal courts to protect consumers from deception when the trademark holder proves that the use of a mark is likely to cause confusion.

Trademark law also offers the mark holder a potent sword against infringement. Trademarks can be the most valuable assets on a corporation's budget sheet,[42] and courts regularly recognize that value.[43] Competitors are tempted to free ride by creating marks that mimic, imitate, or confuse.[44] Trademark law gives the mark holder a mechanism to stop competitors from using such infringing marks. The crux of the legal analysis revolves around whether the infringing mark is likely to cause confusion among consumers.[45] And therein lies the central value of consumer surveys in trademark infringement litigation: In the absence of difficult-to-obtain evidence of actual confusion, how can we know whether consumers are likely to be confused unless we examine consumer reaction?[46]

The statutory test for consumer confusion is deceptively straightforward. A plaintiff needs to show that defendant is using a mark

---

information that the trademark conveys about the quality of the trademark owner's brand."); Ty Inc. v. Perryman, 306 F.3d 509, 510 (7th Cir. 2002) ("The fundamental purpose of a trademark is to reduce consumer search costs . . . ."); 1 MCCARTHY, *supra* note 1, § 2:5 ("[T]rademarks reduce the customer's cost of acquiring information about products and services.").

41. 15 U.S.C. § 1125(a)(1) (2012).

42. Thomas D. Drescher, *The Transformation and Evolution of Trademarks—From Signals to Symbols to Myth*, 82 TRADEMARK REP. 301, 301–03 (1992).

43. *See, e.g.*, DHL Corp. v. Comm'r, 285 F.3d 1210, 1219 (9th Cir. 2002) (upholding a Tax Court valuation of the "DHL" trademark at $100 million); Nestle Holdings, Inc. v. Comm'r, 152 F.3d 83, 85, 88 (2d Cir. 1998) (vacating the Tax Court's $150,300,000 valuation of Nestle's trademarks and trade names because the valuation methodology used did not encompass all relevant factors).

44. *See generally* David J. Franklyn, *Debunking Dilution Doctrine: Toward a Coherent Theory of the Anti-Free-Rider Principle in American Trademark Law*, 56 HASTINGS L.J. 117 (2004) [hereinafter Franklyn, *Debunking Dilution Doctrine*] (identifying the anti-free-riding impulse in trademark law as a "decisive, yet unstated, factor in many reported dilution cases"); David J. Franklyn, *The New Federal Anti-Dilution Act: Reinstating the Myth of "Likely" Dilutive Harm as a Mask for Anti-Free-Rider Liability*, 11 INTELL. PROP. L. BULL. 199 (2007) [hereinafter Franklyn, *The New Federal Anti-Dilution Act*] (arguing that dilution law is really about the prevention of problematic free riding, or "taking unfair advantage" of a famous brand).

45. 1 MCCARTHY, *supra* note 1, § 2:8 ("[T]he keystone . . . [of] trademarks is the avoidance of the likelihood of confusion in the minds of the buying public.").

46. Shari Seidman Diamond & Jerre B. Swann, *Editors' Introduction: Surveys in Modern Litigation Involving Trademarks and Deceptive Advertising*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 3, 3 ("Thus, it was natural that surveys would become a standard form of evidence—perhaps *the* standard form of evidence—on consumer perception in cases involving trademarks and deceptive advertising.").

that is "likely to cause confusion, or to cause mistake, or to deceive."[47] In order to measure likelihood of confusion, each circuit has developed a multifactor test that measures up to twelve different factors. The Second Circuit's eight-factor *Polaroid* test[48] is often credited as the first and "immensely influential" multifactor test.[49] The Ninth Circuit uses a similar eight-factor *Sleekcraft* test, which shares the most common factors, including the core examination into the "strength of the mark," "proximity of the goods," and "similarity of the marks."[50]

Importantly, "[e]vidence of [a]ctual [c]onfusion" is a weighty factor in every single circuit.[51] These four factors form the core inquiry into any trademark infringement action,[52] even though most circuits augment the test with additional factors, such as marketing channels used, sophistication of customers, and likelihood of product expansion.[53] In any case, recent studies suggest that factors beyond the first four are virtually inconsequential.[54]

Trademark law considers three main types of evidence for evaluating the likelihood of confusion: survey evidence, direct evidence, and argument by inference.[55] Direct evidence is often considered the strongest evidence and includes testimony by confused consumers or misdirected letters.[56] But substantial and reliable direct evidence of actual deception may be difficult to find. If the junior user has just begun to market his product, an

---

47. 15 U.S.C. § 1114 (2012).

48. Polaroid Corp. v. Polarad Elecs. Corp., 287 F.2d 492, 495 (2d Cir. 1961). The *Polaroid* eight-factor test considers the following factors:

> [T]he strength of his mark, the degree of similarity between the two marks, the proximity of the products, the likelihood that the prior owner will bridge the gap, actual confusion, and the reciprocal of defendant's good faith in adopting its own mark, the quality of defendant's product, and the sophistication of the buyers.

Id.

49. *See* 4 MCCARTHY, *supra* note 1, § 24:32.

50. AMF Inc. v. Sleekcraft Boats, 599 F.2d 341, 348–49 (9th Cir. 1979). The *Sleekcraft* eight-factor test considers the following factors:

> 1. [S]trength of the mark; 2. proximity of the goods; 3. similarity of the marks; 4. evidence of actual confusion; 5. marketing channels used; 6. type of goods and the degree of care likely to be exercised by the purchaser; 7. defendant's intent in selecting the mark; and 8. likelihood of expansion of the product lines.

Id.

51. Bird & Steckel, *supra* note 6, at 1050 tbl.1.

52. *See* Beebe, *supra* note 6, at 1589 ("Common to all of the circuits' tests are four factors: the similarity of the marks, the proximity of the goods, evidence of actual confusion, and the strength of the plaintiff's mark.").

53. Bird & Steckel, *supra* note 6, 1050 tbl.1.

54. *See infra* subparts II(A), (C).

55. 4 MCCARTHY, *supra* note 1, § 23:63. McCarthy refers to direct evidence as "[e]vidence of actual confusion." *Id.*

56. *Id.* § 23:13.

infringement action may be brought to prevent consumer confusion that has not yet occurred in the marketplace from taking place, so no direct evidence of confusion will yet exist.[57] If the marks have coexisted for some time, some consumers who have been confused may not be aware of the deception and others may not complain or be willing to step forward.[58] The motives of employees or friends who report evidence of deception may be suspect,[59] producing evidence that is susceptible to criticism.

The alternative to direct evidence is survey evidence, which can measure whether an appreciable number of relevant consumers are likely to be confused by a mark that may or may not already be in the marketplace, and offers "an economical and systematic way to gather information and draw inferences about a large number of individuals."[60] Courts have long accepted survey evidence on a variety of issues; their validity and admissibility (assuming proper survey design[61]) is black letter law.[62]

In a survey assessing likelihood of confusion, consumers are exposed to the allegedly infringing mark and their reactions are measured. The identity of the relevant consumer population, the nature of the mark, and the circumstances under which a consumer would encounter the mark determine the design of an appropriate survey. Over time, courts and researchers have come to recognize that the question in a likelihood-of-confusion survey is a causal one and that survey-experiments using control groups are appropriate for likelihood-of-confusion surveys in order to provide trustworthy evidence on whether or not the allegedly infringing mark is likely to cause confusion.[63] As a result, survey design has evolved so that surveys now typically include controls designed to rule out competing explanations for consumer responses other than confusion

---

57. *Id.* § 23:12; Mark D. Robins, *Actual Confusion in Trademark Infringement Litigation: Restraining Subjectivity Through a Factor-Based Approach to Valuing Evidence*, 2 N.W. J. TECH. & INTELL. PROP. 117, 129–30 (2004).

58. 4 MCCARTHY, *supra* note 1, § 23:12.

59. Robins, *supra* note 57, at 215; Dan Sarel & Howard Marmorstein, *The Effect of Consumer Surveys and Actual Confusion Evidence in Trademark Litigation: An Empirical Assessment*, 99 TRADEMARK REP. 1416, 1432 (2009).

60. Diamond, *Reference Guide*, *supra* note 3, at 364.

61. *See generally id.* (discussing all of the issues that factor into the determination of whether a survey is properly designed).

62. MCCARTHY, *supra* note 1, § 32:158; Diamond, *supra* note 3, 365.

63. *See, e.g.*, Bracco Diagnostics, Inc. v. Amersham Health, Inc., 627 F. Supp. 2d 384, 448 (D.N.J. 2009) (criticizing a survey's design for failure to use "an adequate control mechanism"); Procter & Gamble Co. v. Ultreo, Inc., 574 F. Supp. 2d 339, 351–52 (S.D.N.Y. 2008) (same); P&G Pharms., Inc. v. Hoffmann-La Roche, Inc., No. 06 Civ. 0034, 2006 U.S. Dist. LEXIS 64363, at *91 (S.D.N.Y. Sept. 6, 2006) (same); Simon Prop. Grp. L.P. v. mySimon, Inc., 104 F. Supp. 2d 1033, 1045–51 (S.D. Ind. 2000) (same); Nat'l Football League Props., Inc. v. ProStyle, Inc., 57 F. Supp. 2d 665, 668 (E.D. Wis. 1999) (same); *see also* Diamond, *supra* note 3, at 399–400, 421 (documenting a growth of surveys with control groups, that is, survey-experiments, in Lanham Act cases).

caused by the allegedly infringing mark. The quality of the survey depends on the appropriateness of the design choices, including the choice of the control stimulus.[64]

4. Deceptive Advertising.—If a party demonstrates that an advertisement is literally false, it is unnecessary to show evidence of consumer reaction to the advertisement to sustain a claim of deceptive advertising.[65] Courts, however, rarely find challenged claims to be literally false, so the parties may conduct surveys to assess what message consumers are taking from an advertisement in order to persuade the court that consumers are (or are not) being misled by an advertisement.[66] As with a likelihood-of-confusion survey, a series of methodological decisions will determine the quality of the survey, including the selection of an appropriate control.[67]

5. Dilution.—When the owner of a trademark alleges likelihood of dilution, the owner of the mark must prove that the mark is famous, meaning that it is "widely recognized by the general consuming public of the United States as a designation of source of the goods or services of the mark's owner."[68] As with proof of secondary meaning, evidence may include indirect evidence from volume of advertising and sales; surveys of brand awareness provide direct evidence of fame.[69]

One factor a court may consider in determining whether a mark or trade name is likely to cause dilution by blurring is "[a]ny actual association between the mark or trade name and the famous mark."[70] Surveys measuring the associations that the allegedly diluting mark is likely to engender are a fairly recent development, reflecting the relative infancy of the Trademark Dilution Revision Act (TDRA), which was passed in October of 2006.[71] Moreover, there is substantial controversy regarding the

64. Diamond, *supra* note 3, at 399; *see also* Shari Seidman Diamond, *Control Foundations: Rationale and Approaches*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 201, 212 [hereinafter, Diamond, *Control Foundations*] (discussing features that characterize an appropriate control).

65. 15 U.S.C. § 1125(a)(1) (2012); Bruce P. Keller, *Survey Evidence in False Advertising Cases*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 167, 160–69.

66. Keller, *supra* note 65, at 169.

67. *See supra* notes 63–64 and accompanying text.

68. 15 U.S.C. § 1125(c)(2)(A).

69. *Id.* § 1125(c)(2)(A)(i)–(iii); *see* Levi Strauss & Co. v. Abercrombie & Fitch Trading Co., 633 F.3d 1158, 1160–61 (9th Cir. 2011) (noting the use of surveys and volume of advertising as evidence that a mark was famous).

70. 15 U.S.C. § 1125(c)(2)(B)(vi).

71. *See id.* § 1125(c).

form that these surveys should take (i.e., what questions are appropriate to reflect spontaneous association) and what beyond association might be required to demonstrate likelihood of impaired distinctiveness.[72] Nonetheless, association surveys are increasingly appearing as a component of proof in dilution cases.[73] As with other surveys, methodological decisions, including the choice of a control, affect the value of association surveys.

B. The Overall Role of Surveys in Trademark and Deceptive Advertising Law

A unique facet of trademark law is that the critical factual inquiry invariably revolves around consumer perception and reaction.[74] The bulk of trademark disputes require proving secondary meaning[75] or consumer confusion,[76] and establishing each relies on showing that the relevant consuming public holds certain perceptions about a mark.[77] In terms of proving secondary meaning, consumer surveys are virtually indispensable.[78] Similarly, when the generic nature of a mark is in question or when a competitor alleges that an advertisement is misleading, assessments of

---

72. *See* Shari Seidman Diamond, *Surveys in Dilution Cases II*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 155, 157–62 (discussing the difficulties of producing surveys that measure spontaneous association and assess whether association is likely to impair distinctiveness of a mark); Jerre B. Swann, *Dilution Surveys Under the Trademark Dilution Revision Act*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 145, 154 (concluding that impaired distinctiveness is generally "cognitively inferred from fame, similarity, substantially exclusive use, and association"); Jerre B. Swann, *Swann's Rebuttal to Diamond*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 163, 163–65 (proposing a five-factor test for impaired distinctiveness based on the text of the TDRA).

73. *E.g.*, Nike, Inc. v. Nikepal Int'l, Inc., 84 U.S.P.Q.2d (BNA) 1820 (E.D. Cal. 2007).

74. Diamond & Swann, *supra* note 46, at 3 ("[C]onsumer reaction is the gravamen of infringement."); *accord* MCCARTHY, *supra* note 1, § 32:158 ("Both trademark validity and infringement turn largely on factual issues of customer perception."); *see also* Jacob Jacoby & Lynda Zadra-Symes, *Legal Issues That Can Be Examined Via Survey*, *in* 1 TRADEMARK SURVEYS: DESIGNING, IMPLEMENTING, AND EVALUATION SURVEYS 3, at 5 (2013) (discussing the central role of the mental state of consumers in trademark litigation).

75. 2 MCCARTHY, *supra* note 1, § 15:30 (discussing how to prove secondary meaning).

76. 4 *id.* § 23:63 (discussing how to prove likelihood of confusion).

77. Diamond, *supra* note 3, at 366 ("The pivotal legal question in such cases virtually demands survey research because it centers on consumer perception and memory (i.e., is the consumer likely to be confused about the source of a product, or does the advertisement imply a false or misleading message?).").

78. Co-Rect Prods., Inc. v. Marvy! Adver. Photography, Inc., 780 F.2d 1324, 1333 n.9 (8th Cir. 1985) ("Consumer surveys are recogjdnized by several circuits as the most direct and persuasive evidence of secondary meaning."); *accord* Herman Miller, Inc. v. Palazzetti Imps. & Exps., Inc., 270 F.3d 298, 312 (6th Cir. 2001); 2 MCCARTHY, *supra* note 1, § 15:42 ("One of the most scientific methods of determining the mental associations of the relevant purchaser class is to conduct a survey of the purchasers themselves.").

consumer perceptions are key. Finally, when likelihood of dilution is alleged, surveys are increasingly appearing in litigation to measure fame and association.[79] In the adversarial context of proving infringement or deceptive advertising, the use of consumer surveys has long been held an appropriate,[80] if not a practically compulsory,[81] method of proving several factors—particularly "actual consumer confusion."[82]

II. Studies of Presence and Influence of Surveys in Infringement Decisions

Over time, the use of surveys in trademark and deceptive advertising has grown. According to one account, only 18 surveys were offered in reported cases in the fifteen years between 1946 and 1960, growing to 86 surveys between 1961 and 1975 (approximately 6 per year).[83] Between 1976 to 1990, 442 surveys were presented in reported cases (29 per year); between 1991 and 2005, 742 surveys were offered (approximately 49 per year on average); and in the seven years between 2006 and 2012, about 315 surveys appeared in reported cases (approximately 45 per year).[84]

---

79. For cases involving fame surveys, see, for example, Levi Strauss & Co. v. Abercrombie & Fitch Trading Co., 633 F.3d 1158 (9th Cir. 2011); Visa Int'l Serv. Ass'n v. JSL Corp., 590 F. Supp. 2d 1306, 1315 (D. Nev. 2008). For cases involving association surveys, see, for example, Starbucks Corp. v. Wolfe's Borough Coffee, Inc., 588 F.3d 97 (2d Cir. 2009); Nike, Inc. v. Nikepal Int'l, Inc., 84 U.S.P.Q.2d (BNA) 1820 (E.D. Cal. 2007); Rolex Watch U.S.A., Inc. v. AFP Imaging Corp., 2011 TTAB LEXIS 378 *26–28 (T.T.A.B. 2011).

80. Diamond, *supra* note 3, at 363–66.

81. Morrison Entm't Grp. Inc. v. Nintendo of Am., Inc., 56 F. App'x 782, 785 (9th Cir. 2003) ("Although Morrison is not required to conduct a survey in order to demonstrate actual confusion, such surveys are often used by plaintiffs to bolster their cases."); Charles Jacquin Et Cie, Inc. v. Destileria Serralles, Inc., 921 F.2d 467, 475 (3d Cir. 1990) ("Similarly, a plaintiff's failure to conduct such a survey where it has the financial resources to do so, could lead a jury to infer that the plaintiff believes the results of the survey will be unfavorable."); Gimix, Inc. v. JS&A Grp., Inc., 213 U.S.P.Q. (BNA) 1005, 1006 (N.D. Ill. 1982) ("Neither side in this case has produced any consumer surveys or other similar evidence. Both sides are at fault for such laxness."); Sandra Edelman, *Failure to Conduct A Survey in Trademark Infringement Cases: A Critique of the Adverse Inference*, 90 TRADEMARK REP. 746, 747 (2000) ("[S]urvey evidence has become de rigueur in trademark infringement cases. Indeed, many courts will draw an adverse inference against a plaintiff on the issue of likely confusion if a survey is not introduced.").

82. Mut. of Omaha Ins. Co. v. Novak, 836 F.2d 397, 400 (8th Cir. 1987). *But see* MCCARTHY, *supra* note 1 § 32:184 (arguing that surveys are circumstantial evidence of actual confusion and "do not measure the degree of actual confusion by real consumers making mistaken purchases").

83. Gerald L. Ford, *Survey Percentages in Lanham Act Matters*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 311, 312 n.3.

84. *Id.* This count was updated through 2012 by Gerald L. Ford for a presentation at the McCarthy Law Symposium. Presentation by Shari Diamond, et al., *Survey Evidence: Crunching the Numbers* (Feb. 28, 2013), *available at* http://www.mccarthyinstitute.org/panel_pdfs/empirical-workmaurerdiamondford.pdf.

Based on some claims about the crucial role of surveys, one would be forgiven for believing that every trademark case ended in a dramatic introduction of survey evidence serving as the smoking gun. But recent empirical studies published by accomplished scholars call that belief into question.[85] Several studies have been conducted in the last decade, with the most recent concluding: "survey evidence is used infrequently, treated subjectively, and has the potential to be either dispositive or useless depending on the context of the underlying evidence."[86] Our empirical research sheds light on why commentators can reach such different conclusions.

A. Barton Beebe Breaks Ground, 2006

When Beebe surveyed the state of American trademark law in 2005, he found it "in a severe state of disrepair. Its current condition is Babelian."[87] He was referring to the multifactor likelihood-of-confusion test and all of its various manifestations, different in each of the thirteen circuits.[88] He identified 331 published federal trademark opinions from 2000–2004 that made substantial use of a multifactor-confusion test,[89] and his findings are dramatic.[90] He reviewed each opinion and coded whether the decision resulted in a finding of likelihood of confusion, whether the court considered each factor, and whether the court characterized the factor as favoring or not favoring a finding of likelihood of confusion.[91] Based on his analysis, he characterized the Second Circuit as prodefendant[92] and the Ninth Circuit as proplaintiff.[93]

Beebe wanted to know which factors in the likelihood-of-confusion test were most important.[94] As in many other studies of decision making, he was able to predict decisions on likelihood of confusion based on

---

85. Beebe, *supra* note 6, at 1586; Bird & Steckel, *supra* note 6, at 1017–18. *But see* Sarel & Marmorstein, *supra* note 59, at 1419 (challenging Beebe's methodology in *An Empirical Study of the Multifactor Tests for Trademark Infringement*). *See also infra* subpart II(D) (pointing to other studies agreeing that survey use is not routine).

86. Bird & Steckel, *supra* note 6, at 1017–18.

87. Beebe, *supra* note 6, at 1582.

88. *Id.* at 1582–83.

89. *Id.* at 1649–50 app. A. Beebe excluded all cases involving counterfeit marks or "an alleged breach of a franchising, licensing, or distribution agreement." *Id.* at 1650 app. A.

90. *See id.* at 1597. Beebe only studied "federal trademark infringement cases that produced written opinions available from the Westlaw and Lexis databases." *Id.*

91. *Id.* at 1650–52 app. A.

92. *Id.* at 1597 (observing a 37% "plaintiff multifactor test win rate" in the circuit compared to 51% across all other circuits).

93. *Id.* (observing a 64% plaintiff multifactor test win rate in the circuit compared to 43% across all other circuits).

94. *Id.* at 1598 ("It is something of a pastime in trademark law to speculate on which factors, if any, drive the outcome of the multifactor test and how the factors interact.").

judicial assessments of just a few factors,[95] most prominently the similarity of the marks and proximity of the goods.[96] Using simply the court's assessment of similarity and proximity, Beebe was able to predict case preliminary injunction decisions and bench trial outcomes with a high degree of accuracy.[97]

His finding that similarity of marks is the single most important factor[98] makes intuitive sense. When marks are extremely similar, the situation borders the realm of counterfeiting and free riding, which usually tends to overpower other factors.[99] But Beebe also identified two other influential factors: the defendant's intent when it favored a likelihood of confusion,[100] and the proximity of the parties' goods when that factor disfavored a likelihood of confusion.[101] He also concluded that the intent and actual confusion factors "exert an inordinate degree of influence" on the outcome of the rest of the factors.[102] Moreover, the similarity of the marks and defendant intent were weighted so strongly by judges that they could trigger a finding of confusion despite the outcomes of any other factors.[103] In essence, Beebe described this as a "stampeding" effect and a by-product of "coherence-based reasoning."[104] He theorized that judges essentially looked at just a few factors to decide infringement and then rationalized the rest in order to obtain a coherent outcome.[105]

---

95. *See, e.g.*, RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT 41 (1980) (discussing how judgment heuristics can cause people to attribute greater weight to certain types of information than others when making judgments); JOHN D. STEINBRUNER, THE CYBERNETIC THEORY OF DECISION: NEW DIMENSIONS OF POLITICAL ANALYSIS 67 (1974) ("The cybernetic decision maker is sensitive to information only if it enters through an established highly focused feedback channel, and hence many factors which do in fact affect the outcomes have no effect in his decision process."). For a list of empirical studies of judicial decision making supporting this notion, see Beebe, *supra* note 6, at 1601 n.88.

96. Beebe, *supra* note 6, at 1603.

97. *Id.*

98. *Id.* at 1623 ("[T]he similarity of the marks factor is by far the most important factor in the multifactor test.").

99. *See* Franklyn, *Debunking Dilution Doctrine*, *supra* note 44, at 118 (describing how "judges and juries seek to . . . punish free-riding").

100. Beebe, *supra* note 6, at 1600, 1610.

101. *Id.* at 1608 ("As a practical matter, in order to win the multifactor test, the plaintiff must not lose . . . [the proximity of goods] factor—or alternatively, when the judge finds an overall likelihood of confusion, the judge almost invariably finds that the proximity factor favors this result.").

102. *Id.* at 1600.

103. *Id.* at 1607.

104. *Id.* at 1614–15. *See generally* Dan Simon, *A Third View of the Black Box: Cognitive Coherence in Legal Decision Making*, 71 U. CHI. L. REV. 511 (2004) (describing the use of "coherence-based reasoning" in legal decision making).

105. Beebe, *supra* note 6, at 1614–15.

According to the model of judicial decisionmaking that Beebe presents, "survey evidence, thought by many to be highly influential, is in practice of little importance."[106] He found that only sixty-five (20%) of the 331 opinions he studied discussed survey evidence[107] and thirty-four (10%) credited the survey evidence.[108] Although the rulings in 70% of those cases favored the credited survey, those twenty-four cases represented only 7% of the opinions he studied.[109] Beebe expressed surprise at the low overall proportion of reported cases that involved surveys, although he suggested that the time required to conduct a survey meant that most trademark litigation resolved before trial was unlikely to involve surveys.[110]

Beebe ultimately concluded that judges were indeed shortcircuiting the multifactor balancing test, relying on two or three of the factors (at least similarity of marks and proximity of goods in almost all cases) in a "take the best" strategy that seems to result in what Beebe characterized as an "altogether successful—and rational—approach to decision making."[111] We suggest that an additional process may be occurring. In using coherence-based reasoning, judges may evaluate factors to be consistent with the outcome they favor on other grounds. For example, faced with a persuasive survey that shows evidence of likelihood of confusion, the marks may appear more similar than they might have appeared in the absence of the survey. In that case, it would not be the similarity of the marks, but rather the survey, that led to a finding of likelihood of confusion.

Beebe's coding approach relied on the decisions that the judges made on each factor and he assumed that the judges evaluated each of the major factors independently. Yet, as he observed, the decisions on the less prominent factors tended to match the decisions on the two or three factors he identified as determinative.[112] Thus, his analysis of stampeding acknowledges the possibility that the judgments reached on each factor are not independent, and indeed his own analysis calls into question the causal ordering of these judicial decisions on likelihood of confusion.

We walk away from Beebe's work agreeing that the courts do not practice what they preach in Beebe's study; the multifactor tests are smokescreens for "fast and frugal" heuristics that create the appearance of

---

106. *Id.* at 1622.

107. *Id.* at 1641.

108. *Id.*

109. *Id.*

110. *Id.* at 1642 ("It may be objected that trademark litigation is typically resolved at the preliminary injunction stage before either party has had the time or can be expected to conduct a creditable survey . . . . [I]t is still striking that survey evidence played a relatively minor role even in the bench trial context.").

111. *Id.* at 1614.

112. *Id.*

consensus by producing coherence among three relatively subjective factors (similarity, intent, and proximity).[113] What is less clear is just how that coherence is created.

B. Sarel and Marmorstein Scrutinize Beebe's Findings, 2009

Professors Sarel and Marmorstein performed their own study in 2009 with the goal of determining the effect of survey evidence in trademark infringement cases in which likelihood of confusion was the central issue.[114] Dissatisfied with Beebe's approach[115] they analyzed 126 cases decided between 2001 and 2006 in which the plaintiff possessed an "undisputed, valid trademark."[116] By focusing on these cases, questions about genericism or lack of secondary meaning that might make a survey about confusion legally irrelevant would not affect the outcome of the case. Using independent coders to assess whether the marks were similar or dissimilar and whether the goods were sold in high or low proximity, they also determined whether the plaintiff had presented a survey and, if so, whether the court had admitted or rejected it.[117] Their results on the use and efficacy of surveys differed dramatically from those of Beebe. In approximately one-third of the cases studied (34.1%), plaintiffs offered likelihood-of-confusion surveys[118] and the results suggest substantial impact in cases in which the parties' marks or goods or services are dissimilar.[119]

Sarel and Marmorstein's study showed that the admission of survey evidence increased the success rate on a likelihood-of-confusion issue by 24.2%.[120] When the plaintiff had survey evidence admitted and the trademarks or goods were dissimilar, use of survey evidence significantly increased plaintiff success in obtaining an injunction (by about 60%).[121]

---

113. *Id.* at 1586–87, 1600, 1617.

114. Sarel & Marmorstein, *supra* note 59, at 1430 ("The goal of this study is to help plaintiffs determine the importance and value of presenting actual confusion evidence and/or surveys in trademark infringement litigation.").

115. *Id.* at 1419 ("The methodology Beebe employed is unorthodox and the findings are open to different interpretations.").

116. *Id.* at 1422–23.

117. *Id.* at 1435. They also coded whether actual confusion evidence had been presented and, if so, whether it was weak or strong. *Id.*

118. *Id.* at 1431.

119. *Id.* at 1433.

120. *Id.* at 1426–27 ("In 76.0 percent of cases in which survey evidence was presented and admitted, injunctions were granted. These results are significantly higher than for the 'None' category, in which the plaintiffs prevailed in 51.8 percent of cases . . . .").

121. *Id.* at 1433. Professors Sarel and Marmorstein found:

> In cases involving parties with dissimilar trademarks, plaintiffs prevailed in only 4 percent of the cases in which a survey was not presented, 0 percent in which the plaintiff's survey was rejected, and 61.5 percent in which the plaintiff's survey was admitted. In cases involving dissimilar goods or services, the plaintiffs prevailed in

Where the marks were dissimilar, it was almost impossible to obtain an injunction without a survey—only 4% of plaintiffs were able to obtain an injunction without the use of a survey in such instances, whereas 61.5% obtained an injunction with a survey.[122] And if the survey was rejected, no plaintiff succeeded in obtaining an injunction.[123] Even where the goods and marks were similar, the admission of surveys increased win rates by approximately 17%–20%.[124]

But how could Sarel and Marmorstein reach such dramatically different results from Beebe? It is difficult to tell, but Beebe relied on judicial conclusions about the similarity of the marks and the proximity of the goods. By using two independent coders to assess factors like the similarity of the marks,[125] Sarel and Marmorstein reduced the likelihood that the survey results would artificially influence the way the factors were categorized, avoiding a spurious match to the survey results that Beebe recognized might have occurred with the judges. Moreover, by focusing on cases in which the validity of the mark was undisputed, they studied precisely the cases in which likelihood of confusion would be the central issue. There is one important area in which the two studies converge: Beebe argued that the similarity of marks was nearly dispositive, so it makes sense that surveys would be more useful when marks are less similar. That, of course, is what Sarel and Marmorstein found.[126]

C. *Bird and Steckel Renew the Inquiry, 2012*

The most recent empirical study of surveys returns to the theme of little impact for surveys involving likelihood of confusion.[127] Professors Bird and Steckel used Beebe's data set as a starting point and then expanded it with 202 additional cases from 2005–2006, for a total of 533 federal opinions from 2000–2006.[128] Again, they used only published opinions available on Westlaw and LexisNexis.[129] Their research goal was

---

> only 27.3 percent of cases in which a survey was not presented, 0 percent in which the plaintiff's survey was rejected, and 85.7 percent in which plaintiff's survey was admitted.

Id.

122. *Id.* at 1428.

123. *Id.*

124. *Id.* at 1433 ("[When] the parties had similar trademarks, plaintiffs prevailed in 72.4 percent of cases without surveys and in 91.7 percent of cases with admitted surveys. Likewise, in cases involving similar goods and services, plaintiffs prevailed in 55.6 percent [of cases] . . . without surveys and 72.2 percent of cases with admitted surveys.").

125. *Id.* at 1423.

126. *Id.* at 1433.

127. Bird & Steckel, *supra* note 6, at 1035.

128. *Id.* at 1029–30.

129. *Id.* at 1031.

to evaluate "what impact surveys have on the outcome of court cases."[130] Ultimately, they concluded that consumer surveys are neither "universally influential" nor "used as often as some would imply."[131]

Bird and Steckel found that 16.6% of the 533 cases discussed survey evidence (representing a decline from Beebe's original 20%).[132] From this, they concluded that "consumer surveys are not especially useful in likelihood of confusion cases."[133] Many of their findings, however, actually corroborate Sarel and Marmorstein's. For instance, Bird and Steckel found that where the marks were similar but the products were dissimilar, the introduction of survey evidence "represents an apparent 76.7% increase in the probability that a likelihood of confusion finding will occur."[134]

Overall, they found that surveys were not used in the majority of cases and that their actual effect varied greatly depending on the weight of other evidence and the factual circumstances.[135] To that end, their findings supported Beebe's conclusion that three factors of the multifactor test were disproportionately influential.[136] The predicted outcomes on these core factors can serve as navigation points for survey usefulness.[137] They also found that it was in close cases that surveys were most useful;[138] in cases where the plaintiff's key non-survey evidence was especially strong or weak, the survey was either redundant or insufficient.[139]

Bird and Steckel recognized that their study of published cases did not permit them to measure the role that surveys played in cases that settled.[140] They theorized it was likely that "surveys play a very different role in cases that settle" and admitted that their "estimate of the degree to which they are used [in settlement] could be vastly understated."[141] To this end, they hypothesized a number of roles that surveys could play in the pretrial stage, such as determining the viability of a lawsuit or leveraging favorable settlements.[142] Lacking any further data on pretrial usage, however, they

130. *Id.* at 1029.

131. *Id.* at 1048.

132. *Compare id.* at 1035, *with* Beebe, *supra* note 6, at 1641.

133. Bird & Steckel, *supra* note 6, at 1035.

134. *Id.* at 1041. *Compare id.*, *with* Sarel & Mormorstein, *supra* note 59, at 1433.

135. Bird & Steckel, *supra* note 6, at 1043–46.

136. *Id.* at 1045–46.

137. *Id.* at 1042–43 (describing a matrix of potential multifactor outcomes and the correlating benefit or "impact" of a survey in each measured against the cost of a survey).

138. *Id.* at 1041 ("Surveys seem to be most helpful to plaintiffs when non-survey proof is of middling strength.").

139. *Id.* at 1041–42.

140. *Id.* at 1047.

141. *Id.*

142. *Id.* at 1036.

could not assess whether survey usage in federal court misrepresented the role of surveys in trademark-related disputes.[143]

D. Other Studies Find Agreement that Survey Use Is Not Routine

Empirical studies into survey use are by no means an untouched field of study. Dozens of scholars have examined court decisions to assess the role of surveys. Graeme W. Austin studied cases over a ten-year period (1993–2003) and found that surveys were introduced in 57.4% of trademark infringement cases that went to final judgment.[144] He concluded that the surveys influenced the result in 35.2% of cases.[145] Jacoby and Morrin studied cases from 1994 to 1997 and reported that courts were generally skeptical of survey evidence.[146] Kevin Blum, Ariel Fox, Christina Hayes, and James Xu studied 224 infringement cases in the Southern District of New York from 1994–2008 with "[t]he goal of testing Beebe's results over a longer period of time."[147] They too found results "consistent with Beebe's national study."[148] They concluded: "survey data is less frequently employed than one might expect given the conventional wisdom that survey evidence is routinely employed to prove a likelihood of confusion."[149]

The consensus in all of these studies is that survey data is neither omnipresent nor likely to be as important as some other factors when it appears in published opinions. But before we conclude that surveys play an unimportant role in trademark litigation it is worth considering the role it is reasonable to expect surveys to play. First, what roles do they—should they—play in the stages that precede court hearings? Second, how much survey activity is warranted where marks are highly similar, the proximity of the goods is high, or there is evidence of intent to free ride? The plaintiff may reasonably believe that further proof is unnecessary. Why then would we expect a survey? Third, how often are competent and defensible surveys offered as evidence? If a survey is not competently done, why should we expect it to be influential?

---

143. *Id.*

144. Graeme W. Austin, *Trademarks and the Burdened Imagination*, 69 BROOK. L. REV. 827, 867–69 (2004).

145. *Id.* at 867.

146. Jacob Jacoby & Maureen Morrin, *"Not Manufactured or Authorized by. . .": Recent Federal Cases Involving Trademark Disclaimers*, 17 J. PUB. POL'Y & MARKETING 97, 100, 103 (1998).

147. Kevin Blum et al., *Consistency of Confusion? A Fifteen-Year Revisiting of Barton Beebe's Empirical Analysis of Multifactor Tests for Trademark Infringement*, 2010 STAN. TECH. L. REV. ¶ 3 (2010), http://journals.law.stanford.edu/sites/default/files/stanford-technology-law-review/online/blum-consistency-of-confusion.pdf.

148. *Id.* ¶ 88.

149. *Id.* ¶ 64.

Thus, the real empirical questions worth asking are: how often and with what effect are surveys conducted when other evidence is ambiguous and survey evidence can be probative—of likelihood of confusion or of other trademark issues? We cannot answer all of these questions here, but we can provide evidence that suggests a larger role for surveys than is reflected in the previous studies of published opinions.

III. Reported Cases Without Survey Evidence

We begin by looking closely at a sample of reported cases in which surveys were not offered. The article by Graeme W. Austin, who studied cases over a ten-year period (1993–2003), provided the names of 23 federal cases in his sample in which no survey evidence was offered.[150] We looked closely at each of these cases for cues to the absence of survey evidence and the court's perspective on it.

In seven cases, the plaintiff presented evidence of instances of actual confusion that the court found persuasive[151] or stipulated to absence of actual confusion.[152] In three cases, the defendant's mark was identical or nearly identical to that of the plaintiff[153] or the defendant was a licensee whose conduct went beyond the scope of the license agreement.[154] Assuming that these cases are representative of those in which scholars have not found surveys, these categories offer some explanation for why no survey was presented. With good evidence of actual confusion, no dispute about its absence, or nearly identical marks, a survey may be unnecessary or irrelevant, and these categories account for almost half (10/23 = 43%) of the no-survey cases.

In seven other cases, the court explicitly commented on the absence of a survey (e.g., "Planet Hollywood has offered no survey evidence on the question of whether there would likely be any confusion by consumers

---

150. Austin, *supra* note 144, at 868 n.175.

151. *E.g.*, Quantum Fitness Corp. v. Quantum Lifestyle Ctrs., 83 F. Supp. 2d 810, 830 (S.D. Tex. 1999) (granting preliminary injunction and holding that "Quantum Fitness has submitted competent evidence of actual confusion"). *See also* Locomotor USA, Inc. v. Korus Co., No. 93-56032, 1995 U.S. App. LEXIS 401, at *22 (9th Cir. Jan. 6, 1995); Pocono Int'l Raceway, Inc. v. Pocono Mountain Speedway, Inc., 171 F. Supp. 2d 427, 441 (M.D. Pa. 2001); Patsy's Brand Inc. v. I.O.B. Realty Inc., 58 U.S.P.Q.2d (BNA) 1048, 1057 (S.D.N.Y. 2001); Rainforest Cafe, Inc. v. Amazon, Inc., 86 F. Supp. 2d 886, 903 (D. Minn. 1999); Porsche Cars N. Am., Inc. v. Manny's Porshop, Inc., 972 F. Supp. 1128, 1131 (N.D. Ill. 1997).

152. Banfi Prods. Corp. v. Kendall-Jackson Winery, Ltd., 74 F. Supp. 2d 188, 198 (E.D.N.Y. 1999).

153. *E.g.*, Apple Corps. v. Button Master, 47 U.S.P.Q.2d (BNA) 1236 (E.D. Pa. 1998) (involving "pin-on buttons featuring the name and likeness of The Beatles"); *see also* Calvin Klein Jeanswear Co. v. Tunnel Trading, No. 98 Civ. 5408, 2001 U.S. Dist. LEXIS 18738, at *28 (S.D.N.Y. Nov. 16, 2001).

154. Hard Rock Café Int'l (USA) Inc. v. Morton, No. 97 Civ. 9483, 1999 U.S. Dist. LEXIS 8340, at *3 (S.D.N.Y. June 1, 1999).

between Planet Hollywood restaurants and Hollywood Casino's operations" (denying injunction);[155] "[plaintiff has] yet to conduct any customer survey of their own to provide support of their claim that their mark has secondary meaning, despite ample time, resources and motivation to do so.";[156] "[A]lthough AFLAC suggested it would submit survey evidence at the preliminary injunction hearing, it did not have time to complete the survey and presented no survey evidence." (denying preliminary injunction)[157]). Thus, the judge noted the absence of surveys in these cases and indicated that the evidence was weakened by its absence. Of course, neither we nor the judge could know whether a survey would have changed the outcome of the case or whether a survey was actually conducted and not presented, but the court found the absence of a survey to be an omission worth noting.

Among the six remaining cases, in one case, the plaintiff actually submitted a survey, but it was stricken as untimely.[158] In a second, the court denied summary judgment for the defendant who pointed to differences between the marks of plaintiff Sam's Wines & Liquors and defendant Wal-mart's Sam's Wholesale Club.[159] Although not explicitly referring to the absence of a survey, the court noted "[T]he defendant has failed to produce evidence showing that the consuming public would not be confused by the similarities between the marks."[160] Only four cases did not fall in any of these categories. This analysis of reported no-survey cases thus suggests that many of them lacked surveys for good reasons, or that the lack of a survey was potentially detrimental to the strength of the case.

---

155. Planet Hollywood, Inc. v. Hollywood Casino Corp., 80 F. Supp. 2d 815, 866, 905 (N.D. Ill. 1999).

156. J & J Snack Foods Corp. v. Nestle USA, Inc., 149 F. Supp. 2d 136, 153 (D.N.J. 2001).

157. Am. Family Life Ins. Co. v. Hagan, 266 F. Supp. 2d 682, 685, 690 (N.D. Ohio 2002); *see also* Int'l Data Grp. v. Ziff Davis Media, Inc., 145 F. Supp. 2d 422, 438, 441 (D. Del. 2001) (denying preliminary injunction, finding that "[t]his does not preclude IDG from later introducing evidence, such as survey data, that demonstrates actual confusion of consumers or advertisers"); Am. Auto. Ass'n v. AAA Auto. Club of Queens, Inc., No. 97 CV 1180, 1999 U.S. Dist. LEXIS 8892, at *22 n.11 (E.D.N.Y. Feb. 8, 1999) (granting preliminary injunction, finding "deliberative infringement in this case (in addition to some evidence of actual confusion)" and noting that "[n]either side has offered surveys or market research"); Playboy Enter., Inc. v. Terri Welles, Inc., 78 F. Supp. 2d 1066, 1083 (S.D. Cal. 1999) (granting summary judgment to defendant, finding that "[p]laintiff has presented no empirical evidence (either anecdotal or survey) to show that there is actual confusion among consumers"); Sea-Roy Corp. v. Parts R Parts, No. 1:94CV00059, 1997 U.S. Dist. LEXIS 21809, at *107 (M.D.N.C. Dec. 2, 1997) ("Plaintiffs in this case, like the competitor in *Glover*, could have offered evidence [on genericism] in the form of consumer surveys.").

158. Golden W. Fin. v. WMA Mortg. Servs., No. C 02-05727, 2003 U.S. Dist. LEXIS 4100, at *13–14 (N.D. Cal. Mar. 12, 2003).

159. Sam's Wines & Liquors, Inc. v. Wal-Mart Stores, Inc., No. 92 C 5170, 1993 U.S. Dist. LEXIS 12394, at *3, *16 (N.D. Ill. Sept. 2, 1993).

160. *Id.* at *8.

We turn now to our survey of trademark attorneys for some further insights on the pretrial decisions that lead or do not lead to the presentation of a survey in court.

IV. The INTA Survey—Introduction

As far as we can tell, this is the first attempt to empirically measure the use of survey evidence in the prelitigation context. Almost all of the literature has complained of this missing gap in the empirical studies.[161] We surveyed a large body of trademark attorneys and professionals with a brief questionnaire designed to elicit information about how, if at all, they have used surveys at any stage of litigation and what kinds of effects the surveys have had. We found ample evidence to suggest that surveys enjoy a substantial life before trial as critical evaluative and leveraging tools. In short, we found that survey use at trial is just the tip of the iceberg.[162]

A. Eligible Survey Participants

To uncover the role that surveys may play before a formal court action occurs, we could not use court files.[163] As the gatekeepers who decide whether or not to commission a survey, attorneys were the logical source of information on these preceding-decision stages, so a survey of practicing attorneys was a sensible methodological approach to take. The International Trademark Association (INTA) graciously agreed to send emails to its members inviting them to participate in the survey. As the leading global association of trademark owners and professionals in the world, INTA offered access to a large group of active trademark attorneys and professionals.[164]

Using their membership list, INTA sent invitations to their members in November 2013, inviting them to participate in the survey.[165] Although the

---

161. *See, e.g.*, Bird & Steckel, *supra* note 6, at 1047.

162. Thus, confirming Bird & Steckel's observation. *Id.* at 1036 ("Although we cannot say for certain, what we observe in the federal court system may merely be the 'tip of the iceberg' of survey usage in trademark-related disputes.").

163. Even PACER files would not disclose these cases.

164. *About INTA*, *supra* note 8; *see also* Leah Chan Grinvald, *Shaming Trademark Bullies*, 2011 WIS. L. REV. 625, 655 n.177 (noting that the INTA is the largest trademark organization).

165. The invitation was sent out on November 8 (with a follow-up sent on November 20) and read as follows:

> Dear INTA Member,
>
> INTA is pleased to facilitate an online survey being conducted by Dr. Shari Diamond and Professor David Franklyn, on behalf of the McCarthy Institute for Intellectual Property and Technology Law.

INTA membership does not include attorneys who only occasionally handle a case involving a trademark issue and does include many attorneys who specialize in nonlitigation trademark matters, the membership includes a substantial number of attorneys who are frequently involved in trademark litigation.[166]

B. An Overview of the Survey

The survey included eighteen questions gauging the respondents' experience, if any, with surveys, as well as their occupational background and geographic location. The first question asked whether the respondent had ever commissioned or conducted a survey for a trademark or deceptive advertising matter. Respondents could answer: (1) no; (2) yes, as a lawyer; or (3) yes, as a consultant. Respondents were then asked what factors they considered in deciding whether or not to commission a survey. This was an open-ended question that called on respondents to describe the determinants of their decision without suggesting categories that they might have chosen if the choice was offered, but which did not spontaneously occur to them as a primary consideration.

The next set of questions asked respondents to think of the most recent case in which they had commissioned a survey. First, we asked which issues were involved: likelihood of confusion, secondary meaning, "genericness," deceptive advertising, dilution, and/or other. We then asked respondents to identify what happened with the survey (inviting them to check as many as were applicable):

(1) the results helped to convince *my client* not to pursue a claim;

(2) the results helped to convince *my client* to settle the case;

From the researchers:
The McCarthy Institute—Center for the Empirical Study of Trademark Law—is conducting a survey of INTA members worldwide to determine the ways in which consumer perception surveys are used (or not used) in trademark disputes. It is an anonymous survey. Please click on the link below to take the survey. It should take less than 10 minutes of your time. Kindly complete the survey no later than Monday, November 18. A summary of the survey results will be published in The Trademark Reporter as part of a study that is being undertaken by Dr. Shari Diamond of Northwestern University School of Law and David Franklyn of the McCarthy Institute.

Thank you very much,

Shari Seidman Diamond & David Franklyn (emphasis omitted).

166. *See* Grinvald, *supra* note 164 (explaining that, although "it is difficult to estimate the number of trademark attorneys in the United States," in 2010 there were "approximately 2,218 U.S.-based attorneys who are members of the International Trademark Association").

(3) the results helped to convince *the opposing party* not to pursue a claim;
(4) the results helped to convince *the opposing party* to settle;
(5) the survey was presented in a preliminary injunction hearing;
(6) the survey was presented at trial; and
(7) other.

Following this question, we asked respondents to assess the effect of the survey on the outcome of the case. We then asked the respondent to indicate whether their client in this survey was a plaintiff or defendant.

Our next set of questions focused on the opposing party. We asked whether the opposing party had conducted a survey and repeated the same questions regarding the issues, outcome, and effect of the survey. We closed the survey with a set of more general questions asking how long the respondent had practiced law, how many surveys they had commissioned, how many had been presented at trial, where they practiced law, and what, if any, changes they would like to see in the use of surveys. The Appendix provides the exact wording of all of the survey questions.

C. *Results of the Survey*

We set out to explain the apparent inconsistency between conventional wisdom regarding the importance in trademark cases and the empirical findings provided by Beebe and by Bird and Steckel indicating low survey use. We found that not only are surveys widely used in pretrial stages, but that the attorneys who commission them generally perceive their impact as quite influential on the outcome of the case.

1. The Respondents.—Of the 465 respondents, 335 identified as practicing attorneys (79 identified as "other" and 51 did not indicate their occupation).[167] Two of the practicing attorneys were survey consultants, so we did not include them in the sample of practicing attorneys.

Of the 333 practicing attorneys, 172 (52%) practiced law in the United States and the remaining attorneys practiced in 56 other countries. The U.S. practicing attorneys had practiced law for an average of 20.3 years

167. INTA's membership includes over 6,600 organizations from 190 countries. *About INTA*, *supra* note 8. Members include brand owners, law firms, nonprofits, government agency members, professors, and student members. *Id.* As a result, it is hard to assess the response rate of relevant respondents who received the email invitation, that is, attorneys who are engaged in trademark or deceptive advertising litigation. Although the survey yielded a substantial number of respondents, we assume that the response rate is quite low and we have no way to assess how representative it is of the population of attorneys who litigate trademark matters. Thus, although the practicing attorneys in the sample do reflect a range of seniority and experience, the numbers we report should be viewed with that caution in mind.

(median = 20 years), and the non-U.S. practicing attorneys had practiced for an average of 17.3 years (median = 16 years).

An additional 13 respondents who completed the survey said they had commissioned or conducted a survey as a survey consultant.

2. Use of Surveys.—More than half of the 333 practicing attorneys indicated that they had commissioned at least one survey. Of the 172 who said they practiced law in the United States, 96 (55.8%) reported they had commissioned at least one survey. Of the 145 attorneys in the United States sample who reported they had been in practice at least eight years, 61.4% reported having commissioned at least one survey.[168] This group of 145 attorneys averaged 7.2 surveys per attorney; amongst the 96 who had commissioned at least one survey, the average was 11.8 per attorney. Thus, although a majority of attorneys reported that they used surveys on occasion, the numbers suggest that they do not use surveys in every case.

We do, however, have evidence that an exclusive focus on surveys presented at trial would substantially underestimate how often surveys are commissioned in trademark and deceptive advertising litigation. We asked respondents how many trademark or deceptive advertising surveys they had commissioned and how many of the commissioned surveys had been presented at trial. On average, 19.2% of surveys were presented at trial (median = 11.2%). Some of the surveys may have been presented in a preliminary injunction hearing, but the rest would not be reflected in a formal proceeding other than a *Daubert* motion on admissibility.[169]

Another indicator of the role surveys can play in pretrial stages of litigation comes from the thirteen survey experts in our sample. This was an experienced group who averaged 92 surveys per respondent (median = 50) and they reported that 18% (median = 10%) of their surveys had been presented at trial.

The United States was not alone in survey use. Of the 145 lawyers who said they practiced law outside the United States, 71 (49%) reported they had commissioned at least one survey. Because we are interested in comparing our results with the findings from the studies of federal court cases described above, we focus our analysis here primarily on surveys commissioned by U.S. practicing attorneys.

---

168. When a partner and an associate are working on the same case, the partner will typically be the one who commissions the survey. We did not ask whether the respondent was an associate or a partner, but only 25.9% of 27 attorneys who said they had less than eight years of practice reported having commissioned a survey.

169. For a discussion of survey evidence and *Daubert* challenges, see generally G. Kip Edwards, *The* Daubert *Revolution and Lanham Act Surveys*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 329.

3. When Attorneys Commission a Survey.—Many factors influence whether an attorney will commission a survey in a trademark or deceptive advertising case. Table 1 shows what factors attorneys identified in response to an open-ended question that asked them to describe what factors they considered in deciding whether or not to commission a survey. Respondents were allowed to input multiple factors and describe them in their own words; we then analyzed each response and categorized it according to the most relevant factors.

Table 1: Factors Used in Deciding to Do a Survey—U.S. Practicing Attorneys

Factors in deciding to commission a survey	Attorneys who have commissioned a survey	Attorneys who have not commissioned a survey	All attorneys
Cost/client resources	51 (53.1%)	25 (32.9%)	76 (44.2%)
Closeness of case/other evidence	24 (25.0%)	1 (1.3%)	25 (14.5%)
Value of mark/stakes	18 (18.8%)	3 (3.9%)	21 (12.2%)
Likelihood result will favor client	17 (17.7%)	2 (2.6%)	19 (11.0%)
What other side does/is likely to do	16 (16.7%)	1 (1.3%)	16 (9.3%)
Sufficient time	5 (5.2%)	1 (1.3%)	6 (3.5%)
Jurisdiction/court expectation	10 (10.4%)	4 (5.3%)	14 (8.1%)
No factor mentioned	7	51	58
Total *N*	**96**	**76**	**172**

The most frequently mentioned consideration was cost or the client's budget. A majority (53.1%) of respondents who had commissioned a survey mentioned cost. While only a third of the respondents who had never commissioned a survey answered this open-ended question, each named cost as an explanation and few identified any other factors. The answers given by several of the "no survey" respondents are particularly telling: "I haven't had a client who was willing to undertake the expense" and "[u]sually cost and the analysis ends there."

The second most prominent factor respondents mentioned was the other evidence in the case. One in four respondents with survey experience said their decision on whether or not to commission a survey was the closeness of the case or what other evidence was available. Some of the respondents gave specific examples: "whether the alleged falsehood is express or implied"; "whether the confusion factor analysis is close enough to warrant a survey"; "closeness of the marks"; "whether I have good evidence of actual confusion." These responses help to clarify why a survey is not done in every case even when cost is not a key issue: the legal and factual nature of the case may or may not make a survey useful or even relevant.[170]

A third factor mentioned by a substantial number of respondents was the value of the mark or the stakes at issue. This factor implicitly reflects an evaluation of whether it is worth bolstering the strength of the party's position irrespective of the nature of other available evidence: when the potential loss would be very harmful, the cost of obtaining additional evidence that may assist is worth assuming.

The fourth factor frequently mentioned was the likelihood that the survey results would favor the client. It is of course reasonable for an attorney to avoid spending client money collecting evidence that will not assist the client. However, using this criterion as a basis for determining whether a survey will be done reveals a potential weakness in cases that do not include a survey.

When courts draw a negative inference from the absence of a survey,[171] they may in part be reflecting a suspicion that the party did not produce a survey for one of two reasons: either the party anticipated a negative result and did not do a survey or a survey was done but the results did not favor the party.[172] Although it is standard practice in survey research to pretest questionnaires before fielding a survey in order to ensure that respondents will understand the questions,[173] conducting pilot work in

---

170. Note, however, that in a deceptive advertising case, the court may not see a claimed false statement as literally false so that a party who lacks a survey to assess the message conveyed by the advertisement may be taking a risk in relying on literal falsity.

171. *E.g.*, Merriam-Webster, Inc. v. Random House, Inc., 35 F.3d 65, 72 (2d Cir. 1994).

172. Surveys are protected from discovery by attorney–client privilege. *See, e.g.*, MCCARTHY, *supra* note 1, § 32:179 (discussing the level of protection afforded surveys under work-product doctrine).

173. *See Standards and Guidelines for Statistical Surveys*, OFF. OF MGMT. & BUDGET § 1.4 (Sept. 2006), http://www.whitehouse.gov/sites/default/files/omb/inforeg/statpolicy/ standards_stat _surveys.pdf (specifying that to ensure that all components of a survey function as intended, pretests of survey components should be conducted unless those components have previously been successfully fielded); *Best Practices*, AM. ASS'N FOR PUB. OP. RES. § 6, http://www.aapor.org/Best_Practices1.htm ("High quality surveys and polls always provide adequate budget and time for pretesting questionnaire(s) and field procedures.").

the trademark context may also warn the party that conducted the pilot work that a survey will not produce favorable results. Thus, in some cases, courts may be correct in drawing a negative inference from the absence of a survey. That is, a party may not conduct, or at least may not produce, a probative survey precisely because the evidence would not favor that party. Four of the U.S. respondents (and two non-U.S. respondents) explicitly mentioned this role for pilot surveys.

Finally, the fifth factor that respondents mentioned with some frequency was what the other side does or is likely to do. Attorneys faced with an opposing survey see themselves at risk if they do not have empirical evidence to counter the opposing party's survey results. Our results from attorneys reporting on their most recent case provide some evidence that an unopposed survey may be more influential than one that is opposed.[174]

4. The Nature of Surveys in Litigation—To obtain concrete information on a sample of recent surveys conducted in trademark and deceptive advertising litigation, we asked respondents to describe their most recent case involving a survey. The attorneys in the United States reported that a majority of the surveys were conducted on behalf of plaintiffs (75.9%), no doubt reflecting the fact that the plaintiff typically bears the burden of proof in trademark and deceptive advertising litigation. We expected that defendants would be more likely to feel the need to conduct a survey if they knew that the plaintiff had conducted one. And indeed, in cases in which the respondent reported commissioning the survey on behalf of the defendant, the attorney was somewhat more likely to report that the opposing party had conducted a survey (50% versus 31%).[175]

As the results in Table 2 indicate, the topic most commonly addressed in a survey was likelihood of confusion (81.25%).[176] A number of the cases involved surveys that addressed multiple issues, but nearly one in five cases involved surveys exclusively addressing an issue other than likelihood of confusion.

---

174. *See infra* section IV(C)(5).

175. In 26% of the cases with plaintiff surveys and in 27% of the cases with defendant surveys, the attorney did not know whether or not the opposing party had conducted a survey.

176. Our survey experts reported an even higher rate of likelihood-of-confusion surveys in their most recent case. Twelve of the thirteen (92%) said that likelihood-of-confusion was at least one survey issue, although in only five of those cases was it the only survey issue (other issues were secondary meaning (6%); genericness (2%); deceptive advertising (2%); and dilution (2%)). The thirteenth expert reported that deceptive advertising was the only survey issue in the most recent case.

Table 2:Topic(s) Addressed in the Most Recent Case Involving a Survey

Topic of survey:	*N*	Percentage
Likelihood of confusion	78	81.25%
Secondary meaning	32	33.3%
Genericism	18	18.7%
Deceptive advertising	15	15.6%
Dilution, including fame and association	19	19.8%
Other	3	3.1%
Total *N* of cases	**96**	

The sole survey issue in six of the cases was genericism and in another six cases the sole survey issue was deceptive advertising. In contrast, dilution surveys in all but one case accompanied a survey assessing the issue of likelihood of confusion, reflecting the role of dilution claims as a backup for a claim of likelihood of confusion.[177] These results show only the nature of the most recent case in which surveys were conducted and cannot tell us how often surveys are commissioned when a case involves a question of genericism or deceptive advertising. The results do reveal that the role of surveys in trademark and deceptive advertising litigation will be underestimated if we focus exclusively on cases involving likelihood of confusion.

5. Survey Effects in Litigation.—To gauge the role played by surveys in the course of litigation, we asked respondents about the outcome of the survey in their most recent survey case: "What happened with your survey(s) in this case?" We presented them with six options, tracing the potential progress of a claim from its earliest stages through trial, and invited them to choose as many of them as applied. They could also select "other" and specify what that meant. Table 3 shows how and when the surveys were used.

177. *See generally* Franklyn, *Debunking Dilution Doctrine*, *supra* note 44 (noting that, even though dilutive harm is always speculative and very difficult to prove, plaintiffs may prevail on dilution when likelihood of confusion cannot be demonstrated).

Table 3: Survey Use in the Course of Litigation

Question: What happened with your survey(s) in this case? Please select as many as apply.

What happened with the survey?	*N*	Total *N*	%
Survey convinced my client or opposing party not to pursue the claim or to settle the case:		47	54%
Convinced client only	26		
Convinced opposing party only	20		
Convinced both	1		
Survey was presented at preliminary injunction or trial:		31	36%
Presented at preliminary injunction	13		
Presented at trial	16		
Presented at both	2		
Survey was used for "other" purpose:		9	10%
Case settled before trial	1		
Unfavorable results	3		
Unspecified	1		
Excluded by court	2		
Results presented at arbitration	1		
None of the above	1		
Total		**87**	**100%**

The results in Table 3 describe how surveys were used as the litigation unfolded, revealing substantial activity in the early stages of litigation. In 47 cases, the case ended when the survey convinced one or both parties not to pursue the claim or to settle the case. This group of cases constitutes more than half of the 87 cases (54%) in which the attorney provided outcome information.[178] In contrast, only 31 survey cases (36%) proceeded to a preliminary injunction hearing, a trial, or both.

We invited respondents to check as many responses as applied, so the figures in Table 3 provide a conservative estimate of the role of surveys. They do not completely reflect the supporting role played by surveys in leading to dropped claims and settlements because the cases in the table

178. We could not determine the role of the survey in the nine cases in which the matter was still pending (8) or the respondent did not remember (1).

show only the role of the survey at the point when the case ended.[179] For example, respondents in four of the thirteen cases (30%) that ended with a preliminary-injunction hearing also indicated that the survey convinced one or both parties to settle the case. We do not know whether this occurred before or after an opinion was written in the case, but if settlement occurred before an opinion was written, the case would not have appeared in a study of published cases.[180]

The respondents did not report a direct role for the surveys in all of these cases, either in settlement or in a court hearing, but several responses reveal ways that published cases may miss survey activity behind the scenes apart from stimulating settlement. In three cases, the respondent reported that the survey was not used because it did not produce favorable results: "Not helpful but client pursued and prevailed"; "ended up not using at trial because of bad results"; and "results convinced client to pursue in venue that would not require a survey." These results did not persuade the parties to settle, but they influenced the nature of the evidence that was produced in the course of the litigation.

We also asked each respondent to assess the overall effect of the survey(s) on the outcome of the case, using a 7-point scale ranging from 1 = not at all influential to 7 = extremely influential. Table 4 shows that on average the respondents rated the survey(s) in their most recent case as somewhat influential. A moderate rating would have been 4, the midpoint of the scale. The mean rating was 4.55 and the median 5. Less than one in four respondents (22.9%) rated the survey(s) at 3 or lower on the scale, and 61.5% rated them 5 or higher.

179. Across all cases, 17 respondents said the survey convinced the client not to pursue the claim; 20 said it convinced the client to settle; 5 said it convinced the opposing party not to pursue the claim; and 27 said it convinced the opposing party to settle.

180. We thank David Schwartz for pointing this out.

Table 4: Perceived Effect of Survey on the Outcome of the Case

Question: What would you say was the overall effect of your survey(s) on the outcome of the case?

(1 = Not at all influential; 7 = Extremely influential)

What happened with the survey?	Mean	*N*	Std. Deviation	Median
Led client to settle or not pursue the claim	4.81	26	1.52	5.00
Led opposing party to settle or not pursue the claim	5.20	20	1.10	5.00
Led both to settle	5.00	1	-	5.00
Preliminary injunction	5.15	13	1.14	5.00
Trial	4.56	18	2.12	5.00
Pending	3.88	8	1.64	4.00
Other	2.30	10	1.57	1.50
Total	**4.55**	**96**	**1.74**	**5.00**

To gauge whether surveys were evaluated as more influential at different stages of litigation (e.g., were they perceived as more influential when presented at trial?), we compared ratings for the cases disposed of at different stages of litigation. We found no evidence that surveys were perceived as more influential when they were presented in a preliminary injunction hearing (mean = 5.15) or at trial (mean = 4.56) than when they led to settlement or dropping of claims before trial (mean = 4.81 by client; mean = 5.20 by opposing party). In each instance, the survey on average received above-midpoint mean and median ratings. Not surprisingly, surveys in pending cases generated a more equivocal rating on influence (mean = 3.88; median = 4): their influence level was still uncertain when the outcome of the case was not yet determined. Similarly, when a survey was not used due to an unfavorable result or exclusion by a court, it was rated well below the midpoint of the scale in influence.

As we might expect, respondents rated an opposing survey as less influential than the survey they commissioned (4.06 versus 3.23, t (34) = 2.30, p = .028). This tendency to privilege our own work or possessions is a well-known human characteristic.[181] Yet, in cases in which the

181. *See generally* Elizabeth Hoffman & Matthew L. Spitzer, *Willingness to Pay vs. Willingness to Accept: Legal and Economic Implications*, 71 WASH. U. L.Q. 59 (1993) (reviewing

respondent faced an opposing survey, respondents rated their own survey as less influential than when their survey was unopposed. Respondents rated the influence of an unopposed survey at 4.84 and the influence of an opposed survey at 4.06 ($t = 2.01$, $p < .05$). We would expect this difference if a well-conducted opposing survey raises doubts about a survey that provided conflicting results, but it is also possible that cases with and without opposing surveys differ on other dimensions as well.

Research on reported cases suggests that only a small percentage of survey cases in trademark litigation involve opposing surveys (8/89 cases = 9%).[182] Our attorney survey finds that opposing surveys may be more common than the pattern in the published cases would suggest. We asked respondents whether the opposing party had conducted a survey in their most recent case. Although respondents did not know whether the opposing party had done a survey in 26% of the cases, they reported that an opposing survey had been done in 36.5% of the cases. Even if we look only at the cases involving likelihood of confusion, respondents reported an opposing survey in 32.1% of them. It is unclear why reported cases should be less likely to include dueling surveys, but this difference again suggests that the litigation landscape may not be fully captured in an analysis of reported cases.

V. Implications of the Attorney Survey Results

Our attorney survey helps to explain why contemporary scholarship reveals relatively low survey use in reported trademark decisions. Our results indicate that surveys are used heavily in pretrial assessments and strategic decision making.[183] They play key roles in claim evaluation and are understood by attorneys as an influential settlement tool for both sides.[184] Therefore, many surveys are never reported because they effectively contribute to pretrial resolution.

We also find that the primary driving force affecting survey use is cost. Clients who may benefit from surveys are potentially priced out of court. Furthermore, they may be unable to extract an advantageous settlement without the aid of a survey. The key issue going forward will be cost

---

research showing "people value commodities more when they own the commodities than when they do not"); Dale T. Miller & Michael Ross, *Self-Serving Biases in the Attribution of Causality: Fact or Fiction?*, 82 PSYCHOL. BULL. 213 (1975) (analyzing evidence of "self-serving biases in perception[s] of causality"); Richard Thaler, *Toward a Positive Theory of Consumer Choice*, 1 J. ECON. BEHAV. & ORG. 39, 44 (1980) (coining the term "endownment effect" for the principle that people tend to value goods more when they own them than when they do not).

182. Bird & Steckel, *supra* note 6, at 1035.

183. *See supra* Table 3 (54% of surveys used in settlement and claim evaluation).

184. *See supra* Tables 3 & 4 (lawyers rated surveys as highly effective during settlement phases).

management and hopefully new survey products and innovations that will give more litigants access to these critical tools when they are needed.

A. *Why Reported Cases Underrepresent the Role of Surveys*

Authors gauging the influence of surveys in trademark litigation by analyzing reported case outcomes have been correct to express unease about whether their results fully capture the role played by surveys in these cases. Fifty years ago, Karl Llewellyn warned against the "*threat of the available*"—his concern that researchers would "mistake the merely available, the easily seen, for all there is to see."[185] Court decisions resulting in published opinions are the easily seen portion of litigation, but the majority of claims do not reach that stage.

Our survey of trademark attorneys helps assess the role played by surveys in publicly invisible stages of litigation. The results suggest that surveys often play an important role in the course of litigation that is not detectable in studies of reported cases that reach their final disposition in formal court actions. The attorneys reported not only that surveys are influential, but also that in a majority of cases involving surveys, the results of the surveys help to convince parties to drop claims or to settle. It is significant that surveys affect not only the opposing party's willingness to drop a claim or settle, but are also used to convince a client not to pursue a claim or to settle.

Is there a selection bias in the cases that are not resolved until formal court action occurs? It is widely acknowledged that the process of winnowing disputes for litigation is not random,[186] and although the exact nature of the selection process is in dispute, most models assume that the fraction of cases going to trial declines as uncertainty about the trial outcome declines.[187] Thus, if a survey produces convincing evidence for or against either party, that evidence should reduce uncertainty and make trial less likely. We would expect then that some of the most convincing surveys never appear in reported cases because the claims that generated those surveys are dropped or settled before a preliminary injunction hearing or trial produces a court opinion.

B. *A Survey for Every Case?*

Several authors reporting on the frequency of surveys that appear in published cases have expressed surprise that survey evidence was not

185. Karl N. Llewellyn, *Legal Tradition and Social Science Method: A Realist's Critique*, *in* JURISPRUDENCE: REALISM IN THEORY AND PRACTICE 77, 82 (1962).

186. *E.g.*, Peter Siegelman & Joel Waldfogel, *Toward a Taxonomy of Disputes: New Evidence Through the Prism of the Priest/Klein Model*, 28 J. LEGAL STUD. 101, 103 (1999).

187. *Id.* at 102 n.2.

offered in most cases.[188] Their surprise is in part understandable in light of court commentary identifying survey evidence as the most direct evidence that can be offered in trademark cases.[189] And indeed, a well-conducted survey can offer strong probative evidence on consumer perception that is hard to duplicate in other ways. Although part of the reason why surveys are not the norm in published cases may be a larger role for surveys in cases that are resolved before formal court dispositions, there are other explanations as well.

Both our attorney survey results and our close analysis of the Austin sample of no-survey cases[190] provide several reasons why litigants do not produce survey evidence in every trademark case. Some of these reasons reflect the nature of the other evidence in the case. If reliable evidence of actual confusion is available, a survey of consumer reaction is redundant. When marks are highly similar or nearly identical, likely confusion may be inferred without survey evidence in an appropriate situation. As Sarel and Marmorstein found, surveys are most influential when marks are dissimilar.[191] Similarly, Bird and Steckel found that a credited plaintiff survey was most influential when other evidence was mixed.[192] It is when courts are faced with equivocal evidence and there is no survey that they are likely to mention the absence of survey evidence.

Other reasons why surveys are not always conducted reflect the nature of trademark litigation. Surveys designed to assess likelihood of confusion, secondary meaning, or genericism are all special purpose surveys that must be generated for litigation to address the particular contested issue. There is no archive of surveys an expert can simply refer to in offering an opinion. Although some experts are willing to opine on how consumers are likely to respond to a mark, they cannot, without a survey of responses to that specific mark, offer more than a hunch about actual consumer response. Because a survey cannot be generated on the spot, identifying an appropriate and available expert and conducting a survey within the swift time frame available in litigation leading to a preliminary injunction hearing may present an insurmountable challenge.

Perhaps the most troubling aspect about the attorney survey responses reported here is the prominent role of cost in determining whether to commission a survey. As others have noted, surveys can be expensive[193]

---

188. *See supra* Part II.

189. *See, e.g.*, Morrison Entm't Grp., Inc. v. Nintendo of Am., Inc., 56 Fed. App'x 782, 785 (9th Cir. 2003).

190. *See supra* Part III.

191. Sarel & Marmorstein, *supra* note 59, at 1432.

192. Bird & Steckel, *supra* note 6, at 1041.

193. *E.g.*, Robert H. Thornburg, *Trademark Survey Evidence: Review of Current Trends in the Ninth Circuit*, 21 SANTA CLARA COMPUTER & HIGH TECH. L.J. 715, 717 (2005) ("[S]urvey

and, as many of our attorney respondents indicated, the expense may deter a litigant from commissioning a survey that can provide relevant and probative evidence on consumer perceptions not easily obtained from other sources. The future of survey research in trademark litigation is likely to be affected by the ability to reduce costs while maintaining defensible quality.[194]

Nonetheless, the choice not to conduct or present a potential probative survey may also stem simply from adversarial strategy. If predicted or obtained survey results would not support the claim of the party that commissioned the survey, the trial court is unlikely to see those findings, so they will not appear in any court opinion.

C. *Judicial Responses to Surveys*

As Barton Beebe's results revealed, just because a survey is presented in court does not mean that the court will find it persuasive.[195] If dueling surveys are presented, the court must decide if either one is persuasive. As with any expert testimony, the court's task can be difficult and judges sometimes complain about the quality of the survey evidence they receive.[196] Although we know of no systematic analysis of how often courts are misled by surveys (or any other expert testimony), there is no doubt that courts are sometimes leery of survey evidence and sometimes credit weak surveys and fault strong ones.

The most recent iteration of judicial complaints about surveys in trademark cases, and the most sweeping, comes from Judge Richard Posner.[197] Although he affirmed the district court's grant of a preliminary injunction based on the similarity of the logos and the products and channels of distribution, he called survey evidence "prone to bias."[198] He noted (correctly) the wide variety of survey designs, none foolproof, and worried that parties may suppress bad results and that experts can be biased.[199] He then offered a series of criticisms of the plaintiff's survey.

---

experts in California charge between $450 to $600 per hour and require support staff billing at rates ranging between $200–300 in orchestrating the actual surveys.").

194. *See* MCCARTHY, *supra* note 1, § 32:196 (observing that "accurate and scientifically precise surveys" are not always introduced because they are costly and litigants are better off not using a survey than using a survey "obtained on the cheap.").

195. Beebe, *supra* note 6, at 1641.

196. *See, e.g.*, J & J Snack Foods Corp. v. Earthgrains Co., 220 F. Supp. 2d 358, 370 (D.N.J. 2002); Learning Network, Inc. v. Discovery Commc'ns, Inc., 153 F. Supp. 2d 785, 789 (D. Md. 2001); Nat'l Football League Props., Inc. v. ProStyle, Inc., 57 F. Supp. 2d 665, 667–68 (E.D. Wis. 1999).

197. Kraft Foods Grp. Brands LLC v. Cracker Barrel Old Country Store, Inc., 735 F.3d 735, 741–43 (7th Cir. 2013).

198. *Id.* at 741.

199. *Id.*

Kraft Foods, the source of Cracker Barrel brand cheese, sued Cracker Barrel Old Country Store when they began selling hams in the same grocery stores that carried Kraft's Cracker Barrel cheese.[200] Kraft argued that consumers were likely to confuse the similar logos and then blame Kraft for any dissatisfaction.[201] In the plaintiff's survey, respondents were shown the allegedly infringing ham and asked whether the company that makes it also makes other products—and if so what products.[202] Judge Posner properly observed that the respondents might be just guessing when they responded, "cheese" (presumably due to the notion that ham and cheese go together).[203]

But the survey did not stop there. Respondents in a control group were shown a ham without the allegedly infringing mark and they did not give a "cheese" response.[204] The survey-experiment thus isolated the effect of the name Cracker Barrel in producing the cheese response in the test cell. In view of the identical use of Cracker Barrel on the two products, this evidence was highly relevant evidence of likelihood of confusion.

Judge Posner, however, would have preferred to have sales evidence that would reflect the extent of consumer confusion in the actual marketplace.[205] His hypothetical study would require, among other things, control of sufficient purchasing settings to manipulate placement of products or a purchasing environment that happened naturally to provide at least quasi-random variation in whether the store carried the allegedly infringing product or, if it did, how closely the products were placed in the store. It is hard to imagine that this study could be carried out under appropriately controlled conditions and produce defensible conclusions about the cause of differences or lack of differences between conditions, let alone that it could be conducted in a reasonable period of time. More importantly, in view of the strength of Kraft's Cracker Barrel mark for cheese, there is no reason to think that proximity to Cracker Barrel cheese in the store would affect consumers' expectation that the ham was put out by the makers of Cracker Barrel cheese. Even Judge Posner acknowledged doubts about the reliability of such a study, and admitted that the design he proposed would have been impossible in the current case when few of the allegedly infringing products had yet appeared in stores.[206]

---

200. *Id.* at 736–37.

201. *Id.* at 742.

202. *Id.*

203. *Id.* ("The respondents may have assumed that a company with a logo that does not specify a particular food product doesn't make *just* sliced spiral ham. So now they have to guess what else such a company would make. Well, maybe cheese.").

204. *Id.*

205. *Id.*

206. *Id.*

Reliable survey evidence provides precisely the evidence that is needed when actual confusion or sales diversion data are unavailable. If no such actual confusion or sales diversion evidence exists, judges are forced to turn to their own reactions to the marks in assessing actual confusion. But as Judge Posner acknowledged, "judges and jurors have their own biases and blind spots."[207] Not only may a particular judge's reaction be idiosyncratic, it may also be quite different from the reactions of members of the relevant consumer population for the products or services at issue. Judge Jerome Frank recognized the weakness of judicial perception in a 1948 trademark case that the publishers of *Seventeen* magazine brought against the makers of "Miss Seventeen" girdles.[208] He observed that in the absence of a test of the reactions of "numerous girls and women," the trial court's finding as to what was likely to confuse was "nothing but a surmise, a conjecture, a guess," noting that "neither the trial judge nor any member of this court is (or resembles) a teen-age girl or the mother or sister of such a girl."[209] It is an all-too-human response for a judge to presume that others will share the judge's reactions.[210] A survey, if properly designed, can correct judicial misimpressions.

Judge Posner's reaction to surveys reflects a judicial unease that is sometimes visible in other judges and displays the suspicion that Judge Posner expressed in an earlier case when he wrote after critiquing a survey: "[N]o doubt there are other tricks of the survey researcher's black arts that we have missed."[211] Judges need to understand the principles of good survey design and be assured that justifiable methodological choices have been made in producing the survey evidence they are asked to consider.

D. Moving Forward: What Is/Should Be the Role of Surveys?

The value of surveys to litigants and courts, both now and in the future, depends on providing clearer standards for good survey design and educating judges to appreciate those standards and to evaluate the extent to which a survey measures up to those standards. Respondents to our attorney survey frequently mentioned both clearer standards and more

---

207. *Id.* at 741.

208. Triangle Publ'ns, Inc. v. Rohrlich, 167 F.2d 969, 974 (2d Cir. 1948) (Frank, J., dissenting).

209. *Id.* at 976–77.

210. The false consensus effect is a strong and well-established cognitive bias that leads a person to assume that their own opinions are shared by others. *E.g.*, Gary Marks & Norman Miller, *Ten Years of Research on the False-Consensus Effect: An Empirical and Theoretical Review*, 102 PSYCHOL. BULL. 72, 72–73 (1987); Lee Ross et al., *The "False Consensus Effect": An Egocentric Bias in Social Perception and Attribution Processes*, 13 J. EXPERIMENTAL SOC. PSYCHOL. 279, 280–81 (1977).

211. Indianapolis Colts, Inc. v. Metro. Balt. Football Club Ltd. P'ship, 34 F.3d 410, 416 (7th Cir. 1994).

educated judges in responding to our question about what, if any, changes they would like to see in the use of trademark and deceptive advertising surveys.

Some respondents suggested more radical changes. To reduce potential bias and thus defuse judicial objections to the methodological decisions made by adversarial experts in designing surveys, several respondents advocated greater use of court-appointed experts or party-agreed-upon survey designs (e.g., "the survey should be agreed upon by both parties to overcome bias"; "both parties pay a neutral party to conduct a non-biased survey"). These reforms have been suggested by others, but have not gained traction in the American adversarial system to this point.[212]

The final frontier is cost. Online surveys offer a potential way to reduce costs. To the extent that the online survey can reduce costs while maintaining control, that format offers great promise.[213]

Conclusion

Surveys may not be ubiquitous in reported cases involving allegations of likelihood of confusion, but they frequently play a central role in the progress of trademark and deceptive advertising litigation before cases appear in court opinions. They are most likely to be commissioned when other evidence in the case is equivocal, which is precisely when they are most likely to influence decisions.

Surveys are valuable tools in trademark litigation, even when they are not deployed in trial. They provide an important reality check on mark evaluation and effective leverage in settlement negotiations. Surveys help inform clients and shape strategy with insight into actual consumer perceptions and their legal significance.

The future of surveys in trademark litigation is likely to depend on the quality of survey design as well as better-educated trademark attorneys, experts, and judges. The tools of survey design have been improving over time (e.g., shifting from surveys to survey-experiments with control groups), producing better options than the designs that were common when surveys were first used in trademark cases. Ample business opportunity

---

212. *See, e.g.*, Justice Stephen Breyer, *Introduction* to REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, *supra* note 3, at 1, 6–7 (advocating greater use of court-appointed experts); Christopher Robertson, *Blind Expertise*, 85 N.Y.U. L. REV. 174, 179 (2010) (advocating use of an intermediary to select qualified experts who will render litigation opinions without knowledge of which party is asking).

213. *See* Roger Tourangeau & Shari Seidman Diamond, *Internet Surveys for Evaluating Trademark Infringement and Deceptive Advertising*, *in* TRADEMARK AND DECEPTIVE ADVERTISING SURVEYS: LAW, SCIENCE, AND DESIGN, *supra* note 24, at 287, 305 (noting the reduced cost of web surveys and the probable development of new methods in the future that will increase control).

exists for survey firms that can reduce costs while maintaining defensible quality. There is still room for improvement, but as a window into the source of relevant consumer reactions to trademarks and allegedly deceptive advertising, the potential evidentiary value of a well-designed survey-experiment is unique.

Appendix–Trademark Survey

(Note: respondents viewed the questions in a slightly different format)

Not all questions were asked of all respondents (e.g., if a respondent answered No to question 1, the respondent was not asked the questions about their most recent survey (questions 3–10)).

We are writing to you as a member of INTA to help us better understand the role that experts and surveys play in litigation. Specifically, we would like to know what, if any, experiences you have had with surveys in trademark and deceptive advertising litigation. We are interested both in cases that did and did not end up going to trial or appearing in judicial opinions. We would appreciate it if you would complete the following brief survey (18 questions). We are not asking you to identify any cases or parties (or experts). All responses will of course be confidential and we will use the responses only to describe aggregate results. We will be happy to share our findings with you when our results are compiled.

Thanks very much,

Shari Seidman Diamond & David Franklyn

Question 1: Have you ever commissioned or conducted a survey for a trademark or deceptive advertising matter?

☐ Yes, as a lawyer I have commissioned a survey
☐ Yes, as a survey consultant I have conducted a survey
☐ No

Question 2: What factors do you consider in deciding whether or not to commission a survey? (Please type your answer below.)

If respondent answered no to Question 1, survey skips to Question 11.

YOUR MOST RECENT SURVEY(S):

Question 3: Please think of the most recent case in which you commissioned or conducted a survey. What issues were involved? Please select as many as apply. (If "Other," please specify.)

- ❑ Likelihood of Confusion
- ❑ Secondary Meaning
- ❑ Genericness
- ❑ Deceptive Advertising
- ❑ Dilution
- ❑ Other_____

Question 4: What happened with your survey(s) in this case? Please select as many as apply.

- ❑ The results helped to convince my client not to pursue a claim
- ❑ The results helped to convince my client to settle the case
- ❑ The results helped to convince the opposing party not to pursue a claim
- ❑ The results helped to convince the opposing party to settle the case
- ❑ The survey was presented in a preliminary injunction hearing
- ❑ The survey was presented at trial
- ❑ Other_____

Question 5: What would you say was the overall effect of your survey(s) on the outcome of the case?

	1	2	3	4	5	6	7	
Not at all influential	○	○	○	○	○	○	○	Extremely influential

Question 6: In this case, the client was the:

- ❑ Plaintiff
- ❑ Defendant

Question 7: Did the opposing party do a survey in this case?

- ❑ Yes
- ❑ No
- ❑ Don't Know

If respondents answered no to Question 7, survey skips to Question 11.

Question 8: What issue(s) did the opposing party's survey(s) address? Please select as many as apply. (If "Other," please specify.)

- ❑ Likelihood of Confusion
- ❑ Secondary Meaning
- ❑ Genericness
- ❑ Deceptive Advertising
- ❑ Dilution
- ❑ Other_____

Question 9: What happened with the opposing side's survey(s)? Please select as many as apply.

- ❑ The results helped to convince my client not to pursue a claim
- ❑ The results helped to convince my client to settle the case
- ❑ The results helped to convince the opposing party not to pursue a claim
- ❑ The results helped to convince the opposing party to settle the case
- ❑ The survey was presented in a preliminary injunction hearing
- ❑ The survey was presented at trial
- ❑ Other_____

Question 10: What would you say was the overall effect of the opposing side's survey(s) on the outcome of the case?

	1	2	3	4	5	6	7	
Not at all influential	❍	❍	❍	❍	❍	❍	❍	Extremely influential

Asked of all respondents:

Question 11: Please respond as appropriate given the following choices:

- ❑ I have been practicing law for the number of years specified in the box below:

  _____

- ❑ I am not a practicing lawyer. My occupation is as follows:

  _____

Questions 12–14 asked only if respondent answered yes to Question 1 (had commissioned or conducted a survey for a trademark or deceptive advertising matter).

Question 12: In total, how many trademark or deceptive advertising surveys have you commissioned or conducted?

Question 13: Of those __ total surveys you've commissioned or conducted, how many have been presented at trial?

Question 14: Are there any changes you would like to see in the use of surveys in trademark and deceptive advertising litigation? Please describe.

Question 15 asked only if respondent indicated practicing law in response to Question 11.

Question 15: Where do you practice law?

- ❑ United States
- ❑ Other_____

Question 16 asked only if respondent had indicated practicing law outside the United States in response to Question 15.

Question 16: In the country where you practice, are surveys ever used on trademark or deceptive advertising issues?

- ❑ Yes
- ❑ No
- ❑ Don't know

Questions 17–18 asked only if respondent answered yes in response to Question 16.

Question 17: What issues have these surveys been used to address? Please select as many as apply. (If "Other," please specify.)

- ❑ Likelihood of Confusion
- ❑ Secondary Meaning
- ❑ Genericness
- ❑ Deceptive Advertising
- ❑ Dilution
- ❑ Other_____

Question 18: In your opinion, should the use of these surveys to address these issues?

- ❑ Increase
- ❑ Stay the same
- ❑ Decrease

Thank you for participating in this survey. If you are interested in the results, please send your email address to Shari Diamond at:

s-diamond@law.northwestern.edu.

* * *

Litigation in the Middle: The Context of Patent-Infringement Injunctions

John M. Golden*

I. Introduction

Software, information and communication technologies, biotech, pharmaceuticals, business methods—these are the fields of "high tech" or (arguably in the case of business methods) "no tech" on which legislative actors,[1] courts,[2] reporters,[3] and academics[4] commonly focus in discussing U.S. patent law. Such focal points seem natural in an "Information Age" that is viewed as distinct from a past "Industrial Age."[5] But there might be

---

* Loomer Family Professor in Law, The University of Texas at Austin. I thank Maria Amon, Grace Matthews, and Lillian Mayeux for research assistance. For helpful comments, I thank David Adelman, John Allison, Jorge Contreras, Michael Meurer, Pamela Samuelson, Ted Sichelman, editors of the *Texas Law Review*, and participants in the *Texas Law Review*'s 2014 symposium "Steps Toward Evidence-Based IP," which was sponsored in part by the Andrew Ben White Center in Law, Science and Social Policy.

1. *See, e.g.*, U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY 45 (2013) [hereinafter GAO REPORT] (concluding that "lawsuits involving software-related patents accounted for about 89 percent of the increase in defendants between 2007 and 2011").

2. *See, e.g.*, Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2111 (2013) (addressing the patent eligibility of genetic sequences corresponding to DNA "isolat[ed] from the rest of the human genome" and "synthetically created DNA known as complementary DNA"); Bilski v. Kappos, 130 S. Ct. 3218, 3228 (2010) (rejecting the proposition "that business methods are not patentable under any circumstances"); Microsoft Corp. v. AT&T Corp., 550 U.S. 437, 442 (2007) (concluding that U.S. patent rights did not reach "computers made in another country when loaded with Windows software copied abroad from a master disk or electronic transmission dispatched by Microsoft from the United States").

3. *See, e.g.*, *Stalking Trolls*, ECONOMIST TECH. Q., Mar. 8, 2014, at 14 (pointing to concerns with "the poor quality of many patents . . .—especially those covering computer software and business transactions").

4. *See, e.g.*, Symposium, *Frontiers of Intellectual Property*, 85 TEXAS L. REV. 1579 (2007) (featuring four articles devoted largely to discussing patent issues relating to software and biotechnology).

5. *Bilski*, 130 S. Ct. at 3227 (contrasting processes characteristic of "the Industrial Age—for example, inventions grounded in a physical or other tangible form"—with "Information Age" developments such as "software, advanced diagnostic medicine techniques, and inventions based on linear programming, data compression, and the manipulation of digital signals"); *see also* John M. Golden, Robert P. Merges & Pamela Samuelson, *The Path of IP Studies: Growth, Diversification, and Hope*, 92 TEXAS L. REV. 1757, 1758 (2014) ("Although world events can still turn on Bismarck's 'iron and blood,' knowledge and bits increasingly determine wealth, power, and everyday life."); Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 584 (1999) ("[T]he canonical patented technology in the eighteenth century was a simple agricultural tool (an axe or a plow) which then became a more complex implement (a cotton gin or reaper) in the nineteenth century; even later, it became a machine, electrical device, or chemical

something significant that is missing from these seemingly natural focal points. There might in fact be substantial commonalities between a large portion of the subject matter of present-day patents and the subject matter of patents typical of the Industrial Revolution. This Article's empirical investigation of patent-infringement injunctions sheds light on such commonalities and the more general possibility that, as far as the patent system is concerned, the Industrial Age is far from over.

Although we might no longer live in an age in which you can safely assume that, "if you put technology in a bag and sh[ake] it, it w[ill] make some noise,"[6] many issued patents still cover relatively straightforward "machines and manufactures"—kinds of technologies that nineteenth- and even eighteenth-century observers would have found familiar.[7] Tens of thousands of patents issue each year in a subset of Industrial Age technology classes that includes, for example, "Animal Husbandry"; "Apparel"; "Baths, Closets, Sinks, and Spittoons"; "Boots, Shoes, and Leggings"; "Cutlery"; and "Metal Working."[8] Further, as the empirical work behind this Article reveals, patents on relatively simple ornamental designs or mechanical technologies play a disproportionate role in at least one significant aspect of modern patent litigation—the granting of injunctive relief by U.S. district courts.[9] Indeed, much of the subject matter targeted by district court injunctions not only has an oddly low-tech feel, but can even appear relatively trivial. A surprising number of injunctions are directed at such apparent mundanities as "pet tubs having a swing ramp,"[10] a casket containing "a memorabilia drawer,"[11] and "Nipple Hugger jewelry."[12]

---

process.").

6. Merges, *supra* note 5, at 585.

7. *Id.* at 587 (suggesting the existence of an "implicit understanding [among] the framers [of the Constitution] and early patent system actors that patents are at their core about machines and manufactures—about nineteenth century technology").

8. *See Part I, Patent Counts by Class by Year*, U.S. PAT. & TRADEMARK OFF., http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cbcby.htm#PartA1 (showing number of patents granted in each year from 1992 through 2013 according to their original technology classifications, with 1,821 patents within the "Metal Working" class issued in 2012 alone).

9. *See infra* text accompanying notes 88–99.

10. Tristar Metals, Inc. v. Edemco Dryers, Inc., No. 4:10-cv-044-A, slip op. at 1–2 (N.D. Tex. May 20, 2010) (permanently enjoining the production, sale, and advertising of "EDI's pet tubs having a swing ramp" in light of U.S. Patent No. 6,516,752); *see* U.S. Patent No. 6,516,752 col. 1 ll. 50–64 (filed July 2, 2001) (issued Feb. 11, 2003) (describing "a veterinary bathing station" involving "a washing stall" elevated by "leg elements," an opening in a side wall "of sufficient size to allow an animal to pass through," and a rotatable ramp "for allowing ingress and egress of an animal . . . without the necessity of lifting the animal").

11. Batesville Servs., Inc. v. S. Rain Casket & Funeral Supply, No. 2:09-CV-257-PPS-APR, slip op. at 1–3 (N.D. Ind. July 15, 2010) (permanently enjoining Southern Rain's production, sale, and use of caskets with a memorabilia compartment in light of U.S. Patent Nos. 5,611,124; 5,727,291; 6,836,936; and 6,976,294); *see* U.S. Patent No. 6,976,294 col. 1 ll. 47–51 (filed July 3, 2002) (issued Dec. 20, 2005) (describing the "present invention" as "providing a casket with an

The predominant presence of such mundanities among the targets of permanent injunctions[13] is surprising given the conventional sense that patent litigation commonly involves relatively high stakes.[14] Patent litigation's tendency toward great expense has caused it to be called the "sport of kings,"[15] a moniker suggesting that this form of tournament imposes high barriers to entry.[16] Given such high costs and the normal intuition that parties will only litigate when the expected benefits of litigation exceed its expected costs,[17] one might naturally expect relatively high stakes to predominate among cases litigated to a final judgment that yields a permanent injunction.[18] Intriguingly, the present empirical study at least partly turns this intuition upside down and provides grounds for viewing patent litigation as an affair that is frequently more bourgeois than regal.

---

integral memorabilia compartment for the placement, display and storage therein of personal effects and mementos"); U.S. Patent No. 6,836,936 col. 1 ll. 47–51 (filed Feb. 25, 1998) (issued Jan. 4, 2005) (same); U.S. Patent No. 5,727,291 col. 1 ll. 41–46 (filed July 9, 1996) (issued Mar. 17, 1998) (same); U.S. Patent No. 5,611,124 col. 1 ll. 36–40 (filed May 10, 1995) (issued Mar. 18, 1997) (same).

12. First Amended Complaint at 4–5, Claudia Croft v. Be Wild, Inc., No. 8:09-cv-00863, at 4 (M.D. Fla. Jan. 21, 2010) (requesting a permanent injunction of the sale of several items of adult jewelry in light of U.S. Patent No. 6,758,061); *see* U.S. Patent No. 6,758,061 col. 1 ll. 59–61 (filed Mar. 11, 2003) (issued July 6, 2004) (describing "the present invention" as "an improved nipple hugger jewelry system").

13. *See infra* text accompanying notes 88–99.

14. *See, e.g.*, William T. Gallagher, *IP Legal Ethics in the Everyday Practice of Law: An Empirical Perspective on Patent Litigators*, 10 J. MARSHAL REV. INTELL. PROP. L. 309, 311–12 (2010–2011) (indicating that "patent litigation is perhaps a prime contemporary example" of "complex, high-stakes litigation"); David L. McCombs et al., *Federal Circuit Appeals from the PTAB: A New Game or Just the Same Old Practice?*, 95 J. PAT. & TRADEMARK OFF. SOC'Y 240, 255 (2013) (discussing impacts of statutory changes on "the high-stakes game that patent litigation has become"); David E. Sosnowski, *Resolving Patent Disputes via Mediation: The Federal Circuit and the ITC Find Success*, MD. B.J., Mar.–Apr. 2012, at 24, 24 ("Patent infringement litigation is high stakes and mediating patent disputes is no easy feat.").

15. James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 2 (2005); Colleen V. Chien, *Of Trolls, Davids, Goliaths, and Kings: Narratives and Evidence in the Litigation of High-Tech Patents*, 87 N.C. L. REV. 1571, 1573 (2009).

16. *See* Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEXAS L. REV. 961, 981 (2005) ("[E]ven if an early-stage company had a patent, it is unlikely that it would have resources available to enforce the patent through litigation against a competitor.").

17. *See, e.g.*, Kathryn E. Spier, *Litigation*, *in* 1 HANDBOOK OF LAW AND ECONOMICS 259, 264 (A. Mitchell Polinsky & Steven Shavell eds., 2007) (observing that a plaintiff "will rationally choose to bring suit when the expected gross return from litigation . . . exceeds the cost of bringing the case to trial").

18. Andrew F. Daughety & Jennifer F. Reinganum, *Settlement*, *in* 8 ENCYCLOPEDIA OF LAW AND ECONOMICS 386, 387 (Chris William Sanchirico ed., 2d ed. 2000) (noting that "the settlement bargaining literature" basically presents "settlement processes" as screening "cases, presumably causing the less severe (for example, those with lower true damages) to bargain to a resolution (or to do this very frequently), while the more severe (for example, those with higher damages) may proceed to be resolved in court").

This inversion of expectations about the targets of patent-infringement injunctions has a number of potentially important implications. First, from a theoretical standpoint, the surprising mundanity of the typical targets of patent-infringement injunctions reminds us of how little we currently know about the selection of disputes for litigation, even litigation that extends all the way to court-ordered remedies.[19] Second, this mundanity suggests some potential unwieldiness of patent-infringement remedies as a lever for further patent law reform[20]: if injunctions primarily target relatively mundane "low tech" subject matter, additional efforts to reform the law on injunctive relief to better suit high-tech and no-tech subject matters might generate more confusion and frustration than efficiency-advancing gain. Finally, the mundanity of patent-infringement injunctions' targets could suggest that, despite the salience of high tech and no tech in current policy debates, there is another side to the modern patent system: a patent-law *Mittelstand* that is directed at niche technologies and modern-day successors to "artifacts of the Industrial Revolution."[21] The apparent predominance of *Mittelstand* technologies among those targeted by patent-infringement injunctions suggests that such seemingly mundane technologies may merit significantly greater policy attention.[22]

This Article proceeds as follows. Part II uses a rational profit-maximizer model to confirm commonly invoked bases for intuitions about the likely high-stakes nature of much patent litigation. Part III discusses the nature and contents of a patent-infringement injunction data set developed through systematic search of records of patent litigation in U.S. district courts in the year 2010. Part IV explores potential explanations for the frequent mundanity of the subject matter targeted by injunctions in the data set. Part V concludes.

II. Expectations Relating to Patent Litigation, Settlement, and Default

Conventional economic analysis suggests that failure to pursue a lawsuit—whether due to a settlement, prelitigation agreement, or simple failure to sue (all of which are hereinafter commonly referred to as a form of "settlement")—should typically occur when the stakes in the lawsuit are

19. *See* John R. Allison et al., *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 712 (2011) (noting that facts about settlement rates and patentee-success rates in litigation involving highly litigated patents "suggest[] that both our measures of patent value and our theories of litigation behavior need some serious reconsideration").

20. *But cf.* John M. Golden, *Principles for Patent Remedies*, 88 TEXAS L. REV. 505, 506–07 (2010) (noting that patent-infringement remedies have become a focal point of recent reform debates).

21. John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139, 1139 (1999).

22. *See infra* subpart IV(C).

relatively small and the litigation costs are relatively large.[23] In other words, such analysis indicates that settlement, broadly understood, should generally filter out of the litigation process suits whose stakes are relatively low compared to litigation costs. High stakes might therefore be expected to predominate in litigation that yields a final judgment and permanent injunction. This Part shows how a rational profit-maximizer model supports such conclusions based on the expected values of pursuing the suit as perceived by the relevant parties.

Of course, one can question the extent to which a rational profit-maximizer model, even with bounded rationality, will successfully predict litigation-related behavior.[24] Regardless of the validity of such questions, however, such models seem commonly to inform intuitions about when litigation or settlement is likely to occur in a commercial context like a typical patent-infringement dispute.[25] This fact itself provides motivation for this Article's use of a profit-maximizer model in a set-the-table role, one in which suggestions from the model will be contrasted with realities of actually observed patent-infringement injunctions.

A. Profit-Maximizer Model Basics

A relatively simple profit-maximizer model focuses on the expectations of a single, alleged rightholder and a single alleged right infringer.[26] If we assume that each party acts—or at least tries to act—like a rational, risk-neutral profit maximizer, we will expect them, generally speaking, to settle their disputes unless at least one of the parties has an expected value for pursuing a lawsuit that exceeds the maximum expected value from available ways of settling. This will be true even if each party's

---

23. *See* Jean O. Lanjouw & Mark Schankerman, *Characteristics of Patent Litigation: A Window on Competition*, 32 RAND J. ECON. 129, 132 (2001) (noting that "[e]xisting theoretical models" indicate that "[t]he probability of litigation rises in the size of the stakes" and "declines in the cost of trial relative to the cost of settlement").

24. *See* Jon Hanson & David Yosifon, *The Situational Character: A Critical Realist Perspective on the Human Animal*, 93 GEO. L.J. 1, 22–23 (2004) (arguing for "retir[ing] the 'rational actor' and its dispositionist brethren in . . . conventional legal theories, social policies, and common sense").

25. *See, e.g.*, John M. Golden, Commentary, *"Patent Trolls" and Patent Remedies*, 85 TEXAS L. REV. 2111, 2126–31 (2007) (discussing how a "potential infringer" might approach deciding between "pay[ing] for a patent license or defend[ing] itself against a charge of patent infringement"); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEXAS L. REV. 1991, 1995–98 (2007) (describing a bargaining model under which parties might pursue litigation or licensing). *See generally* Hanson & Yosifon, *supra* note 24, at 8 (criticizing "the 'rational actor' model of law and economics" but recognizing it as "the now-dominant legal-theoretic paradigm").

26. The status of both parties is described as "alleged" because the validity or scope of claimed patent rights might be questioned and the infringement of any such rights might likewise be unproven.

rationality is "bounded"[27]: for example, if each party suffers from effectively incomplete information or a bias toward optimism or pessimism.[28] Such bounds on rationality will mean that a party's expected values are subjective and perhaps faulty, but these bounds do not prevent parties from making decisions that they believe will maximize expected values, regardless of how subjective or faulty such expectations might be.

A further key point about the rational profit-maximizer model used here is that, in assessing the costs and benefits of various courses of action, parties can take into account benefits or costs that are external to the particular dispute in question.[29] It is not difficult to understand how a party can experience such costs or benefits. A patentee's victory in a patent suit can effectively strengthen the patentee's hand in future licensing, settlement, or litigation relating to the patent.[30] At least partly as a result of legal doctrines such as nonmutual collateral estoppel,[31] a patentee's loss in a patent suit can mean loss of licensing revenue from licensees not directly involved in the suit and a future inability to sue others for potential infringement.[32] Further, either party's demonstration of a willingness to litigate a case vigorously can increase the party's credibility in later negotiations if they decide to threaten to take another party to the litigation

---

27. Oona A. Hathaway, *Path Dependence in the Law: The Course and Pattern of Change in a Common Law System*, 86 IOWA L. REV. 601, 629 n.117 (2001) ("The term 'bounded rationality,' as used in political economy literature, refers to the fact that actors often must act upon imperfect or incomplete information."); Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551, 1553–55 (1998) (defining "bounded rationality" as "the fact that people have cognitive quirks that prevent them from processing information rationally").

28. *See* Oren Bar-Gill, *The Evolution and Persistence of Optimism in Litigation*, 22 J.L. ECON. & ORG. 490, 491 (2005) ("[B]reakdowns in settlement negotiations are often attributed to an optimism bias shared by many lawyers and litigants."). Optimism bias might result from a party's excessive reliance on advice from a self-interested litigation attorney. *See* Steven Shavell, *On the Design of the Appeals Process: The Optimal Use of Discretionary Review Versus Direct Appeal*, 39 J. LEGAL STUD. 63, 81–82 (2010) ("Attorneys have a personal interest in making appeals, as that means more work for them, which suggests that to some degree attorneys will give unduly optimistic advice to clients and promote excessive appeals if direct appeal is the only avenue of appeal."). But as Oren Bar-Gill contends, optimism might also have positive value in a situation involving a legal dispute if it enables a party typically to "succeed in extracting more favorable settlements." Bar-Gill, *supra*, at 491.

29. *See* Spier, *supra* note 17, at 264 (noting that a plaintiff's expected "gross return" from pursuing litigation "could reflect issues that are somewhat beyond the scope of the current dispute, such as the impact that a court decision will have on future cases or the plaintiff's concern for her business reputation").

30. *See* David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 368–69 (2012) (noting that, in addition to contributing to "a war chest" for later litigation, "[s]ettlements generated from . . . weaker defendants" can "bolster the case against later defendants" by providing evidence of nonobviousness or the magnitude of a reasonable royalty).

31. *See* Blonder-Tongue Labs., Inc. v. Univ. of Ill. Found., 402 U.S. 313, 350 (1971) (enabling a plea of collateral "estoppel by one facing a charge of infringement of a patent that has once been declared invalid").

32. *See* Golden, *supra* note 25, at 2134 ("[S]uit on the patent will risk its invalidation, thereby risking general loss of the revenue that the patent could generate.").

mat.[33] One could go on. The basic point is that the value to a party of pursuing a lawsuit can extend beyond costs and benefits directly related to that particular lawsuit and the party opposed therein.

B. Profit-Maximizer Model Details

The mix of considerations described in subpart II(A) can be modeled mathematically if one assumes that each form of party interest can be well represented by a unique monetary value. For example, at any given point in time, the net expected benefit of litigation to an alleged rightholder (hereinafter often referred to more simply, albeit only presumptively, as a "rightholder" associated with the Greek letter "rho") can be modeled by the following equation[34]:

$$B_\rho^L = \theta_\rho X_\rho - (1 - \theta_\rho) Y_\rho - L_\rho \qquad \text{[Eq. 1]}$$

where

- θ_ρ is a number ranging from zero to one that represents what the rightholder believes to be the probability that the rightholder will achieve a specific form of legal victory in the litigation.[35]
- X_ρ is the total value of the rightholder's expected gains from winning on the litigation issue in question. Generally speaking, the value of X_ρ can reflect not only expected court-ordered remedies such as a damages

33. *See* J. Scott Bechtel & Ray I. Throckmorton, *Price Your Case: Expected Value Calculations in Patent Litigation*, 43 LES NOUVELLES 209, 215 (2008) ("[D]emonstrating the willingness to litigate when necessary is sufficient and may be all that is necessary to encourage reluctant candidates to consider the benefits of a license.").

34. This equation complicates common models for expected plaintiff benefits by incorporating the possibility that defeat in litigation can inflict on the plaintiff actual losses with nonzero monetary value, but this complication involves only a relatively straightforward extension of models that neglect this possibility. *Cf.* Keith N. Hylton & Sungjoon Cho, *The Economics of Injunctive and Reverse Settlements*, 12 AM. L. & ECON. REV. 181, 183–84 (2010) (describing standard plaintiff models for the expected value of litigating); George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 12 (1984) (presenting models for the "plaintiff's minimum settlement demand" and "defendant's maximum settlement offer" that do not reflect negative or positive effects, relative to the status quo, of a plaintiff defeat in litigation).

35. The nature of the legal victory of concern in Equation 1 is somewhat arbitrary and could change with time. In a patent suit, for example, the rightholder might be estimating the probability of winning a favorable ruling in a discovery dispute, on claim construction, in response to a summary judgment motion, or on liability or remedies at or after trial. *See* KIMBERLY A. MOORE ET AL., PATENT LITIGATION AND STRATEGY 2–3 (4th ed. 2008) (discussing various stages and issues in a typical patent-infringement case). For the utility of the model, the keys are (a) that the outcome of the legal ruling in question can significantly affect the overall benefits or costs at least one of the parties derives from the suit, and (b) that the outcome of the legal ruling is uncertain or at least potentially subject to different probability estimates by the parties.

award or injunctive relief, but also less court-centric benefits such as increased third-party respect for the victor's rights or a large settlement amount extracted from the alleged infringer after a favorable ruling in the rightholder's favor.[36]

- Y_ρ represents the rightholder's total expected value of losses, excluding litigation costs, that will result from failure to achieve the desired legal victory. Such losses might be anticipated to be zero but could also be positive, for example, because of expected decreases in profits from sales or licensing revenue from third parties after the rightholder's alleged rights are found invalid, unenforceable, not infringed, or lacking in significant monetary value.
- L_ρ represents the rightholder's expected net future litigation cost, including attorney's fees, expert fees, and opportunity costs such as those associated with litigation's drain on rightholder time and attention.[37] The "net" nature of the litigation cost reflects the fact that there could be some outcome-independent gains from litigating, such as increased credibility of future threats to litigate or useful knowledge about the litigation process gained the hard way, through direct experience.

The net cost C_α^L of litigation to an alleged infringer (the "accused" party who is associated, for purposes here, with the Greek letter "alpha") can be similarly modeled:

$$C_\alpha^L = \theta_\alpha X_\alpha - (1 - \theta_\alpha) Y_\alpha + L_\alpha \quad \text{[Eq. 2]}$$

where

36. Because θ_ρ and X_ρ represent rightholder expectations, both can reflect biases or information limitations of the rightholder that might change over time and thus cause the values themselves to shift as, for example, the rightholder learns more about its own arguments and evidence for damages, the corresponding arguments and evidence of the infringer, or what the court at least preliminarily seems to think of various arguments and evidence. *See* Bert I. Huang, *Trial by Preview*, 113 COLUM. L. REV. 1323, 1333 (2013) (discussing how, as litigation progresses, parties can "receive not only previews of the stories to be told at trial, but also a preview of the audience for those stories" (emphasis omitted)).

37. Generally speaking, litigants have some ability to choose the amount that they will spend on a lawsuit at least somewhat separately from and even after the decision whether to litigate at all. *See* Spier, *supra* note 17, at 264 ("In practice, the plaintiff—often with the help of her attorney—must decide how much time and effort to invest in the lawsuit."). For purposes here, the relevant party might be considered to have already settled on the optimal amount to spend on litigation and be looking to determine whether litigation is desirable at that optimal amount of spending.

- θ_α is the alleged infringer's counterpart for θ_ρ. Specifically, θ_α is the value from zero to one that represents the alleged infringer's expectation of the probability that the rightholder will prevail on the litigation issue associated with the value θ_ρ in Equation 1.
- X_α is the expected value of the losses that the alleged infringer believes it will suffer if the rightholder prevails on the relevant litigation issue. X_α could reflect expected court-ordered remedies or a settlement in which the alleged infringer pays money to the rightholder. X_α, the amount that the infringer expects to lose if the rightholder wins, is not necessarily equal to X_ρ, the amount that the rightholder expects to win if the rightholder wins.[38]
- Y_α represents the average value of gains that the alleged infringer expects to experience if the rightholder fails to achieve victory on the relevant litigation issue. For example, Y_α could represent the value of a "reverse payment" that the alleged infringer expects to receive to settle the case after an early ruling makes clear that the rightholder is at risk of having its patent claims declared invalid.[39] As with X_α and X_ρ, the quantities Y_α and Y_ρ can differ in value.
- L_α represents the alleged infringer's expected net future litigation costs, which, like L_ρ, can reflect "intrinsic benefits" of litigation such as its educational value.

We consider a profit-maximizer model in which parties will agree to settle a dispute only when both parties find settlement at least as profitable as litigation[40]—i.e., when the following two conditions are met: (1) the

38. Asymmetry in the party-perceived stakes X_α and X_ρ can occur because the parties associate unequal values with the same outcome. For example, particularly if an injunction helps restore monopoly conditions, a court's ordering of an injunction against continued infringement might save the rightholder more in terms of otherwise lost profits than the injunction costs the adjudged infringer in terms of profits forgone. Asymmetry might also result from parties' disagreement on expected values such as the size of a damages award.

39. *See* Thomas F. Cotter, *Antitrust Implications of Patent Settlements Involving Reverse Payments: Defending a Rebuttable Presumption of Illegality in Light of Some Recent Scholarship*, 71 ANTITRUST L.J. 1069, 1072 (2004) (remarking that settlement "payments from Plaintiff to Defendant are sometimes dubbed 'reverse payments' because the money goes in the opposite direction . . . from what most people would expect to be the norm"); *see also* Hylton & Cho, *supra* note 34, at 187 (noting that an "injunctive settlement, unlike the standard settlement, may require a negative settlement payment—that is, from plaintiff to defendant").

40. *See* Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 228 (1985) (describing profit-maximizing firms as ones whose "managers generally make decisions that they anticipate will make the firm more profitable than any alternative decision would").

rightholder expects the benefits of settling B_ρ^S to be at least as great as those of litigating B_ρ^L; and (2) the alleged infringer expects the cost of settling C_α^S to be no greater than the cost of litigating C_α^L. Symbolically, these necessary conditions for settlement are $B_\rho^S \geq B_\rho^L$ and $C_\alpha^S \leq C_\alpha^L$. To make these conditions more meaningful, however, we need to provide equations that express the settlement-associated quantities B_ρ^S and C_α^S in terms of components corresponding to those of Equations 1 and 2 for B_ρ^L and C_α^L.

Settlement is not assumed to occur costlessly. Thus, net negotiation costs, N_ρ for the rightholder and N_α for the alleged infringer, factor into the values for B_ρ^S and C_α^S.[41]

Of course, the basic purpose of incurring negotiation costs is to bring about an arrangement between the parties. This arrangement is modeled as providing a benefit P_ρ to the rightholder and as imposing a cost P_α on the alleged infringer.[42] Just as in litigation, the stakes in settlement—namely the settlement values P_ρ and P_α—can be asymmetric. Indeed, the parties might specifically arrange for these values to be asymmetric in order to counterbalance asymmetric stakes in litigation and thereby make settlement mutually desirable. Thus, for example, to replicate some of the asymmetric value of an injunction for a right holder, an alleged infringer might agree to a consent judgment that includes an injunction against future infringement.[43]

The quantities defined above permit modeling the benefits and costs of settlement by the following equations:

$$B_\rho^S = P_\rho - N_\rho \quad \text{[Eq. 3]}$$

and

$$C_\alpha^S = P_\alpha + N_\alpha \quad \text{[Eq. 4].}$$

Now, define a quantity $\delta P = P_\rho - P_\alpha$ that represents the difference between P_ρ and P_α. In combination with Equations 3 and 4 and the conditions for both parties to find settlement preferable to litigation, this differential quantity allows expression of the requirements for a plausible settlement value P_ρ as follows:

$$B_\rho^L + N_\rho \leq P_\rho \leq C_\alpha^L - N_\alpha + \delta P \quad \text{[Eq. 5].}$$

---

41. Just as net litigation costs can reflect "deduction" of outcome-independent benefits of engaging in litigation, the quantities N_ρ and N_α can reflect "deduction" of outcome-independent benefits of engaging in negotiation.

42. Although the language in the text best fits a situation where P_ρ and P_α are both positive, these quantities can be negative, as in a reverse-payment settlement in which the rightholder pays the alleged infringer as a condition of settling their dispute. *See supra* note 39.

43. *See* Hylton & Cho, *supra* note 34, at 186 (discussing the economics of an "injunctive settlement," in which "the defendant agrees to accept the terms of the injunction sought by the plaintiff").

One might be tempted to say that the lower bound and upper bound in Equation 5—namely, the quantities $B_\rho^L + N_\rho$ and $C_\alpha^L - N_\alpha + \delta P$, respectively—mark the boundaries of a settlement range for P_ρ.[44] But this statement would be somewhat misleading for at least two reasons. First, the quantity δP is a direct function of P_ρ. Second, expected negotiation costs N_ρ and N_α might also depend at least weakly on what is transferred through negotiation and thus on the value of P_ρ. Consequently, the upper and lower bounds in Equation 5 can vary with P_ρ, and the left and right sides of Equation 5 do not straightforwardly indicate fixed outer bounds for values P_ρ at which settlement can plausibly occur.

Nonetheless, Equation 5 can be used to derive a general relationship among differential quantities that gives insight into how asymmetric values can affect the likelihood of settlement. A first step in deriving this relationship is to recognize that Equation 5 implies that to have any plausible settlement values for P_ρ, the right side of Equation 5 must be at least as large as the left side:[45]

$$B_\rho^L + N_\rho \leq C_\alpha^L - N_\alpha + \delta P \quad \text{[Eq. 6]}.$$

After definition of a variety of new aggregate, average, and differential quantities, Equation 6 can be re-expressed in the following form:

$$\delta T + \delta P + (1 - \theta_{\text{av}})\delta Y - \theta_{\text{av}}\delta X - W_{\text{av}}\delta\theta \geq 0 \quad \text{[Eq. 7]}$$

where

- The "transaction-cost differential" $\delta T = L - N$ equals the difference between the parties' total net litigation costs $L = L_\rho + L_\alpha$ and their total net negotiation costs $N = N_\rho + N_\alpha$.

---

44. *See* A. MITCHELL POLINSKY, AN INTRODUCTION TO LAW AND ECONOMICS 137 (4th ed. 2011) (introducing the concept of a "settlement range" by illustrative example).

45. On the other hand, one should recognize that, unlike Equation 5, Equation 6 is a necessary but not a sufficient condition for the existence of a plausible settlement form. Equation 6 is not sufficient because, after finding a settlement form that satisfies Equation 6, we will still need to check that the associated value of P_ρ satisfies Equation 5. This loss of "power" between Equation 5 and Equation 6 seems acceptable at least once one recognizes that, although, under the model, satisfaction of Equation 5 is necessary and sufficient for the existence of a plausible settlement form, the existence of such a plausible settlement form is itself only a necessary and not a sufficient condition for successful settlement. *See id.* at 140 ("[W]hile a settlement range is necessary before a settlement can be reached, it does not guarantee a settlement."); STEVEN SHAVELL, FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW 407 (2004) (noting how models like that in the text indicate "the range of possible settlements" but do not predict "whether a bargain in the range will be reached"). To predict whether parties would actually successfully negotiate their way to such a settlement form, one would presumably need either a credible model for bargaining itself or some form of pertinent empirical data. Satisfying those needs might be difficult, *see, e.g.*, SHAVELL, *supra*, at 410 (noting that various explicit models for bargaining "make use of essentially arbitrary assumptions" that "substantially influence the probability of settlement and the settlement offers"), and is outside the scope of what Part I's theoretical prologue hopes to achieve.

- The "rightholder-victory differential" $\delta X = X_\rho - X_\alpha$ reflects asymmetry between what the rightholder expects to gain and the alleged infringer expects to lose from a rightholder victory in litigation.
- The "rightholder-defeat differential" $\delta Y = Y_\rho - Y_\alpha$ reflects asymmetry between what the rightholder expects to lose and the alleged infringer expects to gain from a rightholder defeat in litigation.
- The "expected-probability differential" $\delta\theta = \theta_\rho - \theta_\alpha$ represents the difference between the rightholder's and alleged infringer's expectations of the probability of a rightholder victory in litigation.
- The "expected-probability average" $\theta_{\text{av}} = \frac{\theta_\rho + \theta_\alpha}{2}$ represents the average of the rightholder's and alleged infringer's probability expectations.
- The "overall-stakes average" $W_{\text{av}} = \frac{(X_\rho + Y_\rho) + (X_\alpha + Y_\alpha)}{2}$ represents the average of the full-stakes spread—the difference between winning and losing in litigation—for the two parties.

Equation 7 suggests a number of points about circumstances that can frustrate or facilitate settlement. First, consistent with common intuitions, high litigation costs favor settlement or simple nonassertion of legal rights.[46] The term δT in Equation 7, where δT equals the amount by which total litigation costs exceed total negotiation costs, captures this intuition while emphasizing that, more generally, the comparative values of litigation and negotiation costs can be crucial to prospects for settlement.[47] Increases in litigation costs relative to negotiation costs increase the value of δT and thus increase the value of the left side of Equation 7. A large positive value on the left side of Equation 7 suggests that settlement is particularly likely because, in the absence of settlement, the parties will be leaving large "gains from trade" on the table.[48] In short, Equation 7 captures the intuition

46. *See, e.g.*, Robert D. Cooter & Daniel L. Rubinfeld, *Economic Analysis of Legal Disputes and Their Resolution*, 27 J. ECON. LITERATURE 1067, 1082 (1989) (noting that a "decision rule for the rational plaintiff" instructs "[d]o not assert legal claim" when the cost of assertion exceeds a certain value); Leandra Lederman, *Precedent Lost: Why Encourage Settlement, and Why Permit Non-Party Involvement in Settlements?*, 75 NOTRE DAME L. REV. 221, 225 (1999) ("In a nutshell, the reason so many cases settle is because the alternative to settlement is litigation, which is generally quite costly.").

47. Lanjouw & Schankerman, *supra* note 23, at 132 (observing that "theoretical models" indicate that "[t]he probability of litigation declines in the cost of trial *relative to* the cost of settlement" (emphasis added)).

48. *Cf.* WILLIAM J. BAUMOL & ALAN S. BLINDER, ECONOMICS: PRINCIPLES AND POLICIES 445 (5th ed. 1991) ("Economists recognized several centuries ago that where an exchange is entirely voluntary, and there is no cheating or misrepresentation, there must be a net gain for both parties—there must be mutual gains from trade." (emphasis omitted)).

that high litigation costs can favor settlement, although with the caveat, indicated by the differential nature of δT, that high litigation costs can be substantially counterbalanced by high negotiation costs.

A second common understanding captured by Equation 7 is that, whether as a result of asymmetric information or some form of bias, discrepancies in parties' assessments of the probability of a litigation win or loss can frustrate possibilities for settlement.[49] This understanding is captured by the term $-W_{\text{av}}\delta\theta$, which appears in Equation 7 with a negative sign attached. Because W_{av} is an average of sums $(X_\rho + Y_\rho)$ and $(X_\alpha + Y_\alpha)$ that are typically expected to be nonnegative,[50] W_{av} is typically expected to be nonnegative. Consequently, if $\delta\theta$ is greater than zero, the term $-W_{\text{av}}\delta\theta$ is expected to reduce the value of the left side of Equation 7, thereby effectively decreasing perceived "gains from settlement." We might expect $\delta\theta = \theta_\rho - \theta_\alpha$ commonly to be positive because of the frequently observed phenomenon of optimism bias,[51] which can inflate the rightholder's expected probability θ_ρ of winning in litigation while deflating the alleged infringer's expectation θ_α for the probability of that same outcome.

A third set of points about Equation 7 relate to the roles that asymmetric stakes can play in promoting or hindering settlement. First, some forms of asymmetric stakes can frustrate efforts at settlement.[52] That this can occur is perhaps most obviously reflected in the term $-\theta_{\text{av}}\delta X$. Because θ_{av} is an average of probability values that range from zero to one, θ_{av} is necessarily nonnegative, and, as long as we are willing to exclude trivial situations in which both parties are absolutely certain that the rightholder will lose in litigation, we can generally assume that θ_{av} is positive.[53] Under this assumption, if δX is positive, the term $-\theta_{\text{av}}\delta X$ is

---

49. *See* SHAVELL, *supra* note 45, at 404 ("[T]he greater the amount by which a plaintiff's estimate of the likelihood of winning exceeds the defendant's, the smaller the tendency toward settlement . . . .").

50. Otherwise we perhaps should revisit calling the relevant litigation outcomes "rightholder's victory" and "rightholder's defeat," respectively.

51. *See* Bar-Gill, *supra* note 28, at 491 ("The prevalence of optimism generally, and in bargaining games and legal settings specifically, is well documented."); Cass R. Sunstein, *Introduction*, *in* BEHAVIORAL LAW AND ECONOMICS 1, 4 (Cass R. Sunstein ed., 2000) ("Human beings tend to be optimistic.").

52. *See* Jay P. Kesan & Gwendolyn G. Ball, *How are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 248 (2006) ("Another theory explaining the existence of trials is 'asymmetric stakes': if the defendant's loss does not equal the plaintiff's gain, there may be no surplus from the avoidance of a trial to divide and no point in bargaining to a settlement.").

53. Even when allowing for "nuisance suits," litigation in which both sides agree that the chances of the rightholder winning are exactly zero seems a relatively unlikely special case, perhaps particularly where the primary concern, as in this Article, is with suits that ultimately lead to a patent-infringement injunction. *See* Kimberly A. Moore, *Populism and Patents*, 82 N.Y.U. L. REV. 69, 90 (2007) ("While nuisance suits may affect the pool of litigated cases, it seems unlikely that nuisance suits would be continued to trial given the high costs of patent litigation.");

negative. As δX equals the amount by which what the rightholder expects to gain from winning exceeds what the alleged infringer expects to lose if the rightholder wins, optimism bias favors δX being positive and the term $-\theta_{av}\delta X$ being negative. In any event, regardless of the cause for δX being nonzero, a negative value for $-\theta_{av}\delta X$ captures the intuition that, all else equal, settlement is less likely when a rightholder believes it has much more to gain from success in litigation than a defendant believes it has to lose.[54] Similar but somewhat less straightforward analysis applies for the term $(1 - \theta_{av})\delta Y$.

In contrast, other forms of asymmetry can favor settlement. For example, if parties suffer from pessimism, rather than optimism, the sign of a differential such as δX can flip to being negative, with the term $-\theta_{av}\delta X$ then being positive and thus effectively increasing, rather than decreasing, perceived gains from settlement.[55] Likewise, if a rightholder perceives that it has much more to lose from a possible litigation outcome than the alleged infringer believes it has to gain from that outcome, the result might be a positive value for δY and a greater possibility that the parties will work toward a settlement—perhaps a reverse-payment settlement—rather than pursue what, from the parties' joint perspective, would be value-destroying litigation.[56]

Finally, a settlement might be structured so that any settlement-discouraging effect from a term such as $-\theta_{av}\delta X$ is more than counterbalanced by asymmetry reflected in the value of the term δP. Parties might seek substantially to replicate the asymmetric value to the

---

D. Rosenberg & S. Shavell, *A Model in Which Suits Are Brought for Their Nuisance Value*, 5 INT'L REV. L. & ECON. 3, 3 (1985) ("By a suit brought for its nuisance value, we mean a suit in which the plaintiff is able to obtain a positive settlement . . . even though the defendant knows the plaintiff's case is sufficiently weak that he would be unwilling or unlikely to pursue his case to trial.").

54. *See, e.g.*, Kesan & Ball, *supra* note 52, at 252 ("The probability of litigation not only increases with the stakes of the case, but also with the asymmetry of those stakes." (internal quotation marks omitted)). Likewise, optimism bias, asymmetric information, or actual asymmetric stakes can lead to δY being negative, turning the term $(1 - \theta_{av})\delta Y$ in Equation 7 into one that similarly disfavors settlement.

55. *See* Cooter & Rubinfeld, *supra* note 46, at 1076 ("[A]ny policy that increases litigation costs, lowers settlement costs, or makes disputants pessimistic about their trial prospects, will increase settlements.").

56. *See* Allison et al., *supra* note 19, at 688 (finding empirical data to be consistent with a hypothesis that "repeat patent litigants" who have much to lose from a defeat in a patent-infringement suit will have a "greater tendency to settle"); *cf.* Charles Yablon, *A Dangerous Supplement? Longshot Claims and Private Securities Litigation*, 94 NW. U. L. REV. 567, 574 (2000) (noting that asymmetric stakes resulting from threats of "reputational injury" or "collateral estoppel effects" can "create added incentives for defendants to settle all but the claims they view as most marginal"). Of course, settlement of a dispute can be in the parties' private interest without being in the public interest. *See* Einer Elhauge & Alex Krueger, *Solving the Patent Settlement Puzzle*, 91 TEXAS L. REV. 283, 284 (2012) (addressing "widespread legal controversy" over reverse-payment settlements' "anticompetitive potential").

patentee of a court-ordered injunction by arranging for the alleged infringer to promise not to engage in activities that such an injunction would have prohibited. Alternatively, as noted above,[57] the parties can arrange for such an injunction itself as part of a consent judgment.[58] In such situations, the settlement-discouraging asymmetry reflected in $-\theta_{\text{av}}\delta X$ might be more than counterbalanced by the settlement-encouraging asymmetry reflected in δP because, whereas δX in $-\theta_{\text{av}}\delta X$ is weighted by a probability factor θ_{av} that is typically less than one, δP is not discounted by any multiplicative probability factor.

More generally, given that asymmetries in valuation are a conventional part of the basis for thinking parties can obtain gains from trade,[59] one might commonly hope that parties can exploit asymmetries in value, even in litigation values, to generate grounds for settlement, rather than have such asymmetries be a cause of continued dispute.[60] Sometimes this might be impossible, however, as in a case where the basis for asymmetric value is the securing of a legal decision on the merits whose effects and influence cannot be well replicated by a settlement agreement between private parties, even when later backed by a consent judgment from a court. Situations involving such effective "gains from litigation" might occur when one party places special value on using the case to establish legal precedent.[61] For example, a patent holder could hope to achieve special vindication of the worth of its patent through an apparently impartial judicial decision, thereby strengthening its hand in licensing negotiations with third parties. Alternatively, a patent holder might want to establish a precedent vindicating its position that an entire class of patent claims is not invalid for lack of patentable subject matter.[62]

In any event, Equation 7 makes clear that effects of asymmetry on the likelihood of settlement are not unidirectional. Even more generally, the multiterm structure of Equation 7 makes clear that no single term or factor

---

57. *See supra* text accompanying note 43.

58. Hylton & Cho, *supra* note 34, at 181.

59. LOUIS KAPLOW & STEVEN SHAVELL, CONTRACTING 2 (2004) ("Obviously, when the owner of something places a lower value on it than another party does, it's possible for these two parties to enter a mutually beneficial contract for the transfer of ownership (or for lease).").

60. Milton Heumann & Jonathan M. Hyman, *Negotiation Methods and Litigation Settlement Methods in New Jersey: "You Can't Always Get What You Want,"* 12 OHIO ST. J. ON DISP. RESOL. 253, 291 (1997) ("Asymmetric stakes might contribute to problem-solving negotiation because they can make it easier to identify settlement terms that benefit one party without symmetrically harming the other party.").

61. *See, e.g.*, Lederman, *supra* note 46, at 225 & n.32 (observing that, in deciding whether to settle a case, parties will take account of "the potential precedential value of a court decision . . . only to the extent that the precedent would have value to one or both of the parties," as might be true when a party expects to be "a 'repeat player,' that is, a repeat litigant on the issue or issues in the case").

62. *Cf.* Bilski v. Kappos, 130 S. Ct. 3218, 3228 (2010) (rejecting a "broad contention" that "business methods are not patentable in any circumstances").

generally determines whether litigation or settlement will occur. Even if litigation costs are high relative to negotiation costs, discrepancies in expected probabilities of a litigation outcome, or other asymmetries, can overwhelm the impetus toward settlement that litigation costs provide. The fact that the terms $-\theta_{av}\delta X$ and $-W_{av}\delta\theta$ are proportional to measures of party stakes suggests that such possibilities for swamping the litigation-favoring effects of litigation costs are particularly great when the stakes in litigation are relatively high compared to litigation costs. If, as appears to be the case with patent-infringement litigation,[63] there are "economies of scale" in the sense that litigation costs do not rise as rapidly as the stakes involved, one might generally expect that, all else equal, protracted high-stakes litigation is more likely than protracted low-stakes litigation.

For future reference, Table 1 lists a few forms of party expectations that Equation 7 indicates favor settlement or litigation, respectively. In so doing, the table introduces two new phrases, "comparative pessimism" and "comparative optimism." In this context, these phrases do not necessarily indicate that one or both parties suffer from pessimism bias or optimism bias. Instead, "comparative pessimism" and "comparative optimism" indicate that, for whatever reason, each party effectively underestimates or overestimates, respectively, its prospects relative to the other party's estimates.[64] Thus, for example, "comparative pessimism" would exist in a situation in which the rightholder believes that it has a 25% chance of winning expected damages of $1 million in litigation but the alleged infringer believes the rightholder has a 75% chance of winning expected damages of $1 million.

---

63. Survey statistics reported by the American Intellectual Property Law Association (AIPLA) indicate that the ratio of a party's total litigation costs to the amount of money at stake falls as the amount of money at stake increases. *See* AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY 2013, at 34 (2013), *available at* http://library.constantcontact.com/ download/get/file/1109295819134177/AIPLA+2013+Survey_Press_Summary+pages.pdf (reporting "[m]edian litigation costs for patent infringement" based on responses by individuals for "types of litigation [of which] they had personal knowledge" (emphasis omitted)). According to the AIPLA's 2013 survey, the median estimated litigation costs for patent-infringement litigation in which the stakes were less than $1 million were $700,000, about 70% of the upper bound stakes for that category of litigation. *Id.* For the category of litigation in which an amount between $1 million and $10 million was at stake, the median estimated litigation costs were $2 million, 200% of the lower bound for the category and 20% of the upper bound for that category. *Id.* For the category of litigation in which between $10 million and $25 million was at stake, the median estimated litigation costs were $3.325 million, about 33% of the lower bound and about 13% of the upper bound. *Id.* For the category of litigation in which more than $25 million was at stake, the median estimated litigation costs were $5.5 million, 22% of the lower bound for this category. *Id.*

64. *Cf.* SHAVELL, *supra* note 45, at 404 ("[W]hat leads to trial is not that a plaintiff is confident of winning, but rather that he is more confident than the defendant thinks he has a right to be." (emphasis omitted)).

The result of this comparative pessimism would be a value for $\delta\theta$ of -0.5.

Table 1: Factors Expected to Inform Decisions to Litigate or Settle

Factors Favoring Settlement	Factors Favoring Litigation
High litigation costs	High negotiation costs
Parties' "comparative pessimism" about the probabilities or intensities of litigation outcomes, an effect amplified by high total litigation stakes	Parties' "comparative optimism" about the probabilities or intensities of litigation outcomes, an effect amplified by high total litigation stakes
Asymmetric stakes where the asymmetry corresponds to apparent "gains from settlement" (e.g., because the magnitude of one party's expected losses from a litigation outcome exceed the magnitude of the other party's expected gains from that outcome)	Asymmetric stakes where the asymmetry corresponds to apparent "gains from litigation" (e.g., because the magnitude of one party's expected gains from a litigation outcome exceed the magnitude of the other party's expected losses from that outcome and this asymmetry is difficult to replicate through settlement)

C. *Expectations for Suits Involving Litigation to Judgment*

Table 1's factors suggest that, in looking at litigated disputes and, more particularly, in looking at disputes that are litigated to a final judgment featuring a permanent injunction, we might expect to find disproportionate numbers of disputes where there are strong barriers to effective negotiation, high total stakes that amplify the effects of over-optimism about one's own litigation prospects, or stakes that are highly asymmetric between the parties and, for one reason or another, difficult to replicate through settlement.

In the context of patent-infringement disputes, high negotiation costs seem unlikely to be the dominant barriers to dispute. Patent-infringement suits are generally estimated to impose litigation costs ranging from at least several hundred thousand dollars[65] to as much as tens of millions of dollars.[66] In many situations, negotiation costs that substantially counterbalance such litigation costs seem unlikely.[67]

---

65. *See infra* text accompanying note 130.

66. *See* Ashby Jones, *Stalemate in the Patent Wars*, WALL ST. J., May 7, 2013, http://online.wsj.com/news/articles/SB10001424127887323687604578467263432599452 (reporting that the smartphone patent wars had generated "tens of millions of dollars in litigation costs").

67. In *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1507 (2001), Mark Lemley suggested $50,000 might be a reasonable generic estimate for the cost of a license. In

A more plausible barrier to settlement might result from patent holders' or alleged infringers' straying from what would generally be viewed as true profit maximization because of unwillingness to bargain with the other side or unwillingness to accept a settlement that fails to vindicate fully their cause.[68] Although the existence of such zeal might seem counterintuitive in the business-oriented world of patent law, an example can be found in the most prominent set of patent suits of recent years—the smartphone "patent wars"[69] that were stoked by Steve Jobs' commitment to "right[ing a] wrong" for which he asserted a willingness to "spend every penny of Apple's $40 billion in the bank."[70]

More generally, however, high stakes seem likely to be crucial to parties' willingness to take on patent litigation's typically high costs. Even aside from the role of high stakes in the dynamics of choosing between litigation and an actual agreement between the parties,[71] high stakes might be necessary for a rightholder or alleged infringer to choose litigation over simple nonenforcement or default. In some circumstances, litigation costs might be effectively prohibitive because a patentee or potential infringer lacks access to the cash needed to pay litigation expenses. A patentee lacking such cash might seek to "escape" such expenses by hiring an attorney under a contingent-fee arrangement. But reliance on such arrangements might only exacerbate litigation's predisposition—or, at least, protracted litigation's predisposition—toward relatively high stakes. In deciding whether to pursue a case, profit-maximizing contingent-fee

---

private correspondence, Jorge Contreras, a professor at American University who practiced for many years and has extensive experience with patent licensing and settlement, suggested this number might be high for most routine licenses, although in contentious situations—in which one might expect litigation costs also to be inflated—the cost of negotiating a license or settlement agreement might be substantially higher. *See* E-mail from Jorge Contreras, Professor, American University, to author (Mar. 17, 2014, 19:26 CST) (on file with author).

68. *Cf.* Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, *in* BEHAVIORAL LAW AND ECONOMICS, *supra* note 51, at 302, 310 ("Acrimony and a distaste for bargaining tend to eat away any bargaining surplus that otherwise might be expected to exist between the positions of two parties to a case.").

69. Jones, *supra* note 66 (noting that, as of May 2013, "[t]he nearly $300 billion [smartphone] industry ha[d] been roiled in more than three years of expensive litigation in courts from California to South Korea"); *see also* Brian X. Chen, *Apple and Samsung Reprise Patent Fight (with Google a Shadow Presence)*, N.Y. TIMES, Apr. 1, 2014, http://www.nytimes.com/2014/04/02/technology/apple-and-samsung-reprise-patent-fight-with-google-a-shadow-presence.html?_r=0 (reporting on opening statements in "Apple's second big patent action against Samsung Electronics").

70. Damon Poeter, *Biographer: Larry Page Is Wrong, Steve Jobs Really Hated Google*, PCMAG.COM (Apr. 5, 2012, 10:35 PM), http://www.pcmag.com/article2/0,2817,2402679,00.asp (internal quotation marks omitted). *See generally* Hiawatha Bray, *'Dogfight' by Fred Vogelstein*, BOSTON GLOBE, Nov. 20, 2013, http://www.bostonglobe.com/arts/books/2013/11/20/book-review-dogfight-how-apple-and-google-went-war-and-started-revolution-fred-vogelstein/dOFGVosKDj4QynCdfxPXwL/story.html (describing how "Apple Inc.'s worldwide legal assault against South Korean electronics giant Samsung Corp." grew out of "a lover's quarrel").

71. *See supra* text accompanying notes 65–67.

attorneys can be expected to compare expected litigation costs to a discounted form of expected litigation winnings, with the discount often being by something like a factor of three.[72] Consequently, reliance on contingent-fee attorneys could exacerbate, rather than relieve, more general tendencies toward preferential selection of high-stakes disputes for litigation.[73]

At least in principle, one alternative for a cash-strapped patentee or potential infringer might be to represent itself pro se. A practical concern with such an option would be that, given the general complexity of patent litigation and the sheer volume of written material that it can involve, pro se representation might severely compromise hopes for success.[74] In any event, there is no pro se option for many potential litigants because U.S. courts have ruled that business entities generally cannot be represented pro se, and this general rule applies even when there are individuals, such as the founders of a small startup, who might have more informally been considered properly authoritative and representative agents of the business.[75]

In short, under a rational profit-maximizer model for party behavior, patent litigation's typically high costs seem likely to bias substantially litigated cases toward higher stakes. Lower-stakes cases might be expected either not to be filed at all or, if filed, to typically settle or end in default after relatively little litigative effort. Part III will investigate how these

---

72. *See* Lester Brickman, *ABA Regulation of Contingency Fees: Money Talks, Ethics Walks*, 65 FORDHAM L. REV. 247, 248 (1996) (noting that "standard contingency fees" are "usually thirty-three percent to forty percent of gross recoveries" (emphasis omitted)); Poonam Puri, *Taking Stock of Taking Stock*, 87 CORNELL L. REV. 99, 122 (2001) ("A common contingency fee is one-third of the proceeds of litigation.").

73. On the other hand, contingent-fee lawyers could choose to take on a relatively low-value patent dispute for purposes of what they hope to be nonlitigative enforcement—enforcement that attempts to avoid substantial litigation costs by encouraging quick settlement for "amounts that are lower, often far lower, than the amount it will cost an accused infringer to defend itself." Schwartz, *supra* note 30, at 370.

74. *Cf.* Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help*, 19 BERKELEY TECH. L.J. 943, 949 (2004) (arguing that "conservatively more than half—probably the vast bulk—of average patent litigation costs . . . are discretionary" and that, if true, this argument "strongly indicates that, by spending more, a party can increase its chance of winning").

75. *E.g.*, Rowland v. Cal. Men's Colony, 506 U.S. 194, 202 (1993) (observing that lower courts have generally "held that 28 U.S.C. § 1654 . . . does not allow corporations, partnerships, or associations to appear in federal court otherwise than through a licensed attorney"); Osborn v. Bank of the U.S., 22 U.S. (9 Wheat.) 738, 830 (1824) ("A corporation, it is true, can appear only by attorney, while a natural person may appear for himself."); *cf.* Tomio Geron, *How Like.com Shut Down a Competitor—And Broke Up Its Funding Round*, FORBES (Apr. 28, 2011, 2:27 PM), http://www.forbes.com/sites/tomiogeron/2011/04/28/how-like-com-shut-down-a-competitor-and-broke-up-its-funding-round/ (discussing a patent infringement suit against graduate-student founders of a startup that was sued shortly before it was supposed to receive outside funding).

theoretical predictions correspond to the contents of a 2010 data set for patent-infringement injunctions.

III. Circumstances for Patent-Infringement Injunctions

A. The 2010 Patent-Infringement Injunction Data Set

The basic data set used in this study is an updated and enhanced version of a previously compiled data set of 143 patent-infringement injunctions issued by U.S. district courts in 2010.[76] This data set was developed largely through systematic search of the Lex Machina database of U.S. district court patent litigation for injunction-related orders.[77] Like the original, this Article's version of the data set contains 143 injunctions, but the updated data set is not identical to the prior one. I have added one new district court injunction[78] and dropped another injunction after slightly modifying my prior practice of counting separately any injunctive orders that were issued separately, even if in the same case.[79] Another change from the original data set results from reclassification of one injunction as having resulted from a default judgment, rather than having been actively opposed.[80]

Beyond these changes, the original data set has not been altered so much as enhanced. A first extension involves addition of information on subsequent proceedings in the district courts, with particular attention to whether there were later proceedings involving allegations of contempt of injunctions in the 2010 data set. Study of the original 2010 data set had revealed that the majority of issued injunctions involved an apparent technical defect—namely, the use of general "do not infringe" language—a feature that the U.S. Court of Appeals for the Federal Circuit has at least sporadically held to violate requirements for injunction specificity under the

---

76. *See* John M. Golden, *Injunctions as More (or Less) than "Off Switches": Patent-Infringement Injunctions' Scope*, 90 TEXAS L. REV. 1399, 1433–34 (2012) (describing the original dataset of 143 patent-infringement injunctions).

77. *Id.* at 1433.

78. Like.com v. Ugmode, Inc., No. C 09-04596 (N.D. Cal. June 4, 2010).

79. *See* Golden, *supra* note 76, at 1434 ("For purposes of this Article, I have counted separately such same-case orders because, although many of the orders use substantially identical language, this is not true of all of them."). Although the prior practice has advantages of a relatively easily implemented rule, I have decided that, for the new version of the data set, I should depart from that practice with respect to two injunctions that the same court issued in 2010 and that seem to differ only in that one lists only one of two consolidated cases on the cover page whereas the other lists the case numbers for both consolidated cases on the cover. *Compare* I-Flow Corp. v. Apex Med. Techs., Inc., No. 07-cv-1200, slip op. at 1 (S.D. Cal. June 15, 2010) ("Order Granting Joint Motion for Consent Judgment and Permanent Injunction"), *with* I-Flow Corp. v. Apex Med. Techs., Inc., Nos. 07cv1200 & 08cv57, slip op. at 1 (S.D. Cal. June 15, 2010) ("Order Granting Joint Motion for Consent Judgment and Permanent Injunction").

80. Custom Designs of Nashville, Inc. v. Alsa Corp., 727 F. Supp. 2d 719 (M.D. Tenn. 2010).

Federal Rules of Civil Procedure.[81] A question was whether such defects correlate with greater incidence of later contempt proceedings. Unfortunately, significant progress on this point could not be made with this data set because contempt proceedings so far appear to have been very rare, making it impossible for any correlation to be established. Only a few contempt proceedings based on the 2010 injunctions have been identified, with only one of these proceedings known to have resulted in an at least partial finding of contempt.[82]

More immediately fruitful extensions of the 2010 data set involve detailed cataloguing of the technologies, monetary awards, and the course of litigation in cases that yielded patent-infringement injunctions in 2010. These extensions to the 2010 data set are discussed below.

Before proceeding with this discussion, a few remarks should be made about different types of injunctions in the data set. As in a prior article, injunctions from the new version of the 2010 data set are commonly grouped in categories of consented-to injunctions, otherwise-unopposed injunctions (mostly resulting from default judgments), and actively opposed

---

81. *See* Golden, *supra* note 76, at 1422 (noting Federal Circuit cases holding that "obey-the-law injunctions are technically prohibited and thus subject to vacatur on direct appeal").

82. Even with electronic searching, identifying the occurrence of contempt proceedings specifically relating to a particular injunction can be less than trivial. In one case, there were multiple stipulated contempt findings, but none of them appear to be associated with an injunction issued in 2010. *See, e.g.*, Lexmark Int'l, Inc. v. Ink Techs. Printer Supplies, LLC, No. 1:10-cv-00564-MRB (S.D. Ohio Sept. 27, 2013); Lexmark Int'l, Inc. v. Ink Techs. Printer Supplies, LLC, No. 1:10-CV-00564-MRB (S.D. Ohio June 28, 2013); Lexmark Int'l, Inc. v. Ink Techs. Printer Supplies, LLC, No. 1:10-CV-564-MRB (S.D. Ohio June 25, 2013); Lexmark Int'l, Inc. v. Ink Techs. Printer Supplies, LLC, No. 1:10-CV-564-MRB (S.D. Ohio Mar. 1, 2013). Nonetheless, there are at least three cases in which proceedings for contempt of a 2010 injunction have occurred. *See* Taser Int'l, Inc. v. Stinger Sys., Inc., No. CV07-42-PHX-JAT, slip op. at 10 (D. Ariz. Jan. 18, 2012) (denying motion for a finding of contempt); GP Ltd. v. Willis Elec. Co., No. 1:09-cv-3378-TCB, slip op. at 18 (N.D. Ga. Mar. 31, 2011) (partially granting a motion for a finding of contempt); BorgWarner, Inc. v. Dorman Prods., Inc., No. 09-11602 (E.D. Mich. May 11, 2010) (denying without prejudice motion for contempt of preliminary injunction up on appeal). There is a fourth case in which a party gave notice that it would seek an order "enforcing the Stipulated Permanent Injunction and Stipulation of Dismissal and the Settlement Agreement dated March 10, 2010," but no decision on this motion is known to have occurred. Defendant's Notice of Motion to Enforce Settlement at 2, Collezione Europa USA, Inc. v. Amini Innovation Corp., Nos. 06-4929 & 07-3161 (D.N.J. Mar. 28, 2013). Two of the three cases clearly identified as involving relevant contempt proceedings featured obey-the-law language in the injunction that was the basis for the proceeding. *See* Taser Int'l, Inc. v. Stinger Sys., Inc., No. CV07-42-PHX-JAT (D. Ariz. Aug. 27, 2010) (enjoining Stinger not only from activities involving specified products but also "from otherwise infringing, contributing to the infringement of, or inducing others to infringe claims 2 or 40 of the '295 patent"); GP Ltd. v. Willis Elec. Co., No. 1:09-cv-3378-TCB (N.D. Ga. Mar. 11, 2010) (enjoining Willis "from manufacturing, using, offering for sale, selling, or importing into the United States any Christmas light string system that infringes the '870 Patent, or any issued claim of the pending continuation application . . . of the '870 Patent, including without limitation Willis's Infringing Light Systems and any colorable variants thereof"). The number of cases identified as involving relevant contempt proceedings appears too small to support hope for statistically significant findings.

injunctions.[83] Other significant groupings are permanent injunctions and "preliminary injunctions," where the term "preliminary injunctions" appears initially in quotation marks because, for purposes of simplifying the exposition, that term is understood to encompass temporary restraining orders. Of the 143 patent-infringement injunctions in the new version of the 2010 data set, 82 were consented to, 21 were otherwise unopposed, and 40 were actively opposed. 124 were permanent injunctions, and 19 were preliminary injunctions.

B. The Mysterious Mundanity of Enjoined Technologies

The Introduction observed that present policy debates tend to focus on innovations that might be characterized as involving any of a number of extreme forms of technology, so-called high tech or no tech.[84] Part II has suggested that substantially litigated patent disputes are particularly likely to involve high stakes.[85] The contrast between this observation and suggestion and the subject matter of 2010 patent-infringement injunctions is striking.

1. Technologies Targeted by Injunctions.—The technologies associated with individual injunctions were assigned a primary technology classification based on review of associated patents and court filings.[86] The technological classifications used are fairly basic: biomedical substance (including pharmaceuticals and isolated organic materials such as DNA), non-biomedical-substance chemical,[87] electrical, mechanical, ornamental design, and software. An injunction was only placed in the ornamental-design category if all the patents that it enforced were design patents, rather than utility or plant patents. If there was at least one utility patent enforced

---

83. *See* Golden, *supra* note 76, at 1436 & n.167 (discussing "the three categories of consented-to injunctions, otherwise-unopposed injunctions, and the rest, which I term 'actively opposed injunctions'").

84. *See supra* text accompanying notes 1–6.

85. *See supra* text accompanying notes 65–67.

86. A research assistant made initial technology classifications for a substantial number of cases, but the author has personally made or checked all technology classifications ultimately used for purposes of this Article. Where initial classifications were made by the research assistant, the initial classifications and the ultimate classifications were very generally the same except for ultimate classifications in the category of chemical technologies separate from biomedical-substance technologies. In instructions to the research assistant, the author had failed to specify such chemical technologies as a separate potential technology category.

87. The category of non-biomedical-substance chemical inventions includes a dietary supplement defined in terms of its chemical components. *See* Mannatech, Inc. v. Techmedia Health, Inc., No. 3:06–CV–00813–P (N.D. Tex. filed Oct. 29, 2009) (denying summary judgment in a patent-infringement dispute involving U.S. Patent No. 6,929,807, a patent for a dietary supplement containing "'nutritionally effective amounts' of saccarides"); U.S. Patent No. 6,929,807 col. 18 l. 27 to col. 20 l. 8 (filed Aug. 4, 1997) (issued Aug. 16, 2005) (describing the chemical components of dietary supplements protected by U.S. Patent No. 6,929,807).

by an injunction, the injunction was given a primary technological classification appropriate for associated utility patents.

Remarkably, the subject matter targeted by 2010 patent-infringement injunctions is dominated by innovations of a sort that might be thought more characteristic of the nineteenth century than of the twenty-first.[88] Of the 124 permanent injunctions in the data set, just under half (61) appear primarily to involve mechanical technologies. The remaining primary technology classifications are electrical with 18, biomedical substance with 16, the "non-technology" of pure ornamental design with 12, nonbiomedical-substance chemical with 11, and software with 6.[89] Adding to the nineteenth-century feel, the 12 ornamental-design injunctions targeted aspects of mechanical or otherwise tangible macroscopic objects such as forms of furniture.[90]

The nineteenth-century feel to technologies subjected to permanent injunctions deepens when one looks in more detail at the nature of the technologies involved. Generally speaking, one searches in vain for injunctions directed at mechanical technologies like a jet engine or a modern wind turbine. Perhaps the closest one comes is an injunction involving a toy helicopter for which associated utility patents recite relationships between parts such as rotors, rotor shafts, and blades.[91] Typical of this data set are patents on relative mundanities or curiosities that appear to have less than stratospheric economic value: for example, a dry-dock assembly;[92] a vertically-opening car door;[93] nonslip saddle pads;[94] an "alley for processing animals such as cattle or buffaloes;"[95] a visor to be worn by an animal such as a dog;[96] a new form of golf club;[97] roller-skating

88. *See supra* text accompanying notes 5–12.

89. If infringement of a utility patent was asserted in a case in which a 2010 injunction issued, the case was classified as primarily involving a technology other than pure ornamental design. In other words, a case was classified as involving pure ornamental design only if no utility patents were alleged to be infringed in that case.

90. *See, e.g.*, Collezione Europa USA, Inc. v. Amini Innovation Corp., Nos. 06-4929 & 07-3161, slip op. at 4–5 (D.N.J. May 11, 2010) (enjoining actions relating to various "furniture items"); Innovation U.S.A., Inc. v. IDO Furniture (U.S.A.) Inc., No. 1:09-cv-01727-JBW-RLM, slip op. at 3 (E.D.N.Y. Mar. 31, 2010) (enjoining actions relating to a "reclinable sofa-bed . . . and sofa").

91. Silverlit Toys Manufactory Ltd. v. JP Commerce, LLC, No. 2:09-CV-08959-CAS (C.D. Cal. May 3, 2010).

92. Ocean Innovations, Inc. v. Quarterberth, Inc., No. 1:03-CV0913 (N.D. Ohio May 14, 2010).

93. Vertical Doors, Inc. v. Howitt, Nos. CV 06-0984, 07-275, & 09-4685 (C.D. Cal. Jan. 5, 2010).

94. Equi-Tech Labs, Inc. v. Ranch & Trail Supply, No. 4:09-CV-45 (E.D. Tenn. Mar. 23, 2010).

95. Daniels Mfg. Co. v. M S Distributing, No. 8:10CV206 (D. Neb. Sept. 1, 2010); U.S. Patent No. 7,677,205, at [57] (filed Sept. 7, 2007) (issued Mar. 16, 2010).

96. Stampoultzis v. KVP Int'l, Inc., No. 09-CV-8402 (S.D.N.Y. Jan. 21, 2010).

shoes;[98] container devices such as ink cartridges;[99] and the aforementioned pet tubs with swinging ramps, caskets with memorabilia compartments, and nipple-hugger jewelry.[100]

The dominant presence of relatively simple mechanical technologies in the 2010 injunction data set is remarkable. In an Information Age[101] in which about half of patent-infringement suits involve software technology,[102] the near absence of software patents from the set of 124 permanent injunctions is stunning. Only 6 of the data set's 124 permanent injunctions seem properly characterized as targeting an innovation primarily involving software, and the number classified as concerning software does not change even when one looks to secondary technological classifications. In short, software seems to be a central technology in less than 5% of the 124 permanent injunctions and in less than 6% of the subset of 112 permanent injunctions that are directed at patentable subject matter other than ornamental design.

The story for the 19 preliminary injunctions in the 2010 data set is different overall, but it is essentially the same with respect to software. The leading technology classifications among preliminary injunctions are biomedical substance and mechanical, each of which accounts for 9 of the 19 total preliminary injunctions. The remaining preliminary injunction concerns the ornamental design for a box for a media disk such as a CD,[103] a sort of "container technology" that would likely seem familiar to Victorians, even though the container at issue has the specific purpose of holding an artifact more characteristic of a much later era.

2. Limited Monetary Awards.—As indicated earlier,[104] the innovations targeted by injunctions in the 2010 data set seem, overall, to be notably modest in terms of both their likely commercial value and their

97. Irrevocable Trust of Antonious v. Merchs. of Golf, Inc., No. CV10-2634-ODW (C.D. Cal. July 23, 2010).

98. Heeling Sports Ltd. v. New Concord, Inc., No. 3:07-cv-2123 (N.D. Tex. Nov. 2, 2010).

99. Lexmark Int'l, Inc. v. Ink Techs. Printer Supplies, LLC, No. 1:10-cv-00564-MRB (S.D. Ohio filed Dec. 9, 2010).

100. *See supra* text accompanying notes 10–12.

101. *See supra* text accompanying note 5.

102. GAO REPORT, *supra* note 1, at 21 (concluding that from 2007 to 2011, "about 46 percent of [patent-infringement] lawsuits involved software-related patents"); *cf.* Allison et al., *supra* note 19, at 682, 687, 695–96 (reporting that 20.8% of a sample of 343 once-litigated patents were at least partly characterizable as software patents and that 74.1% of patents "litigated eight or more times between January 2000 and February 2009" were at least partly characterizable as software patents).

103. *See* G&M Media Packaging, Inc. v. Bruggeman & Desouter, No. 3:10-cv-02217-JZ (N.D. Ohio Dec. 8, 2010) (issuing a preliminary injunction against actions allegedly infringing U.S. Patent No. D562,049); U.S. Patent No. D562,049, at [57] (filed Apr. 30, 2004) (issued Feb. 19, 2008) (claiming "[t]he ornamental design for a hard box for media disk").

104. *See supra* text accompanying notes 88–100.

technological nature.[105] This apparent lack of high value is surprising given the theoretical considerations suggesting that cases that proceed far enough to yield permanent injunctions—the dominant forms of injunctions in the 2010 data set—should tend to feature relatively high stakes.[106] But appearances might be deceiving. Enjoined technologies might have greater commercial value, or at least potential commercial value, than is immediately obvious. Large monetary awards in cases featuring injunctions would presumably help signal such value. To get an objective indication of stakes in patent-infringement suits in which injunctions are obtained, we can try looking at monetary awards that accompany injunctive relief.

Unfortunately, much information on monetary awards is relatively scattered.[107] Most patent-infringement injunctions—82 of 143 in the 2010 data set[108]—result from consent judgments following agreements between the parties.[109] Even if the parties' settlement agreement includes a payment of money, such monetary terms appear generally to be kept confidential.[110] Consequently, one is left for the most part to look at the visible tip of monetary awards recorded in judicial decisions, which only occasionally involve a consent judgment that embodies a monetary award as well as an injunction.[111] Moreover, even when the existence and value of a monetary award is evidenced in court filings, finding documents that contain that evidence might not be a trivial task: the pertinent contents of such documents might not be clearly indicated in associated docket entries.[112]

Despite these difficulties and caveats, even an incomplete catalog of monetary awards can be informative. For example, if such a catalog reveals that high monetary awards are consistently associated with seemingly mundane technologies, that fact would serve as a corrective to initial

---

105. *See supra* text accompanying notes 13–20.

106. *See supra* text accompanying notes 25–26.

107. *Cf.* Jay P. Kesan et al., *Paving the Path to Accurately Predicting Legal Outcomes: A Comment on Professor Chien's* Predicting Patent Litigation, 90 TEXAS L. REV. SEE ALSO 97, 108 (2012) ("Unfortunately, it is not an easy matter to determine the value of a lawsuit as most patent lawsuits terminate with a settlement.").

108. *See supra* text accompanying note 83.

109. Kesan & Ball, *supra* note 52, at 279 ("[I]njunctions are most commonly found in consent judgments and even formal settlements, most likely as a mechanism for formalizing the agreement.").

110. *See* Kesan et al., *supra* note 107, at 108 ("Nearly all [patent-lawsuit] settlements are confidential, and they are unavailable for general study.").

111. *See, e.g.*, Mannatech, Inc. v. Techmedica Health, Inc., No. 3:06-CV-00813-P (N.D. Tex. Jan. 12, 2010) (enjoining defendants and awarding $250,000 to the plaintiff Mannatech, Inc.)

112. Lex Machina now seeks to report monetary awards such as damages and interest on a "front page" for the cases in its database, but experience has shown that, at least as of the time of the research performed for this Article, these records of monetary awards were significantly incomplete.

impressions that many of these technologies have only limited commercial value.

To assemble a catalog of monetary awards, both case dockets and Lex Machina's summary records for cases were systematically examined.[113] The scope of relevant awards was generously defined. Awards considered for purposes of this study include attorney and expert fees,[114] costs,[115] and even damages for legal violations other than patent infringement—for example, damages for trade secret,[116] trademark,[117] copyright infringement,[118] or portions of fines awarded to a private litigant for successfully charging false patent marking.[119] At least as an initial matter, non-patent-infringement damages were included on the theory that there might be some overlap or synergy between efforts associated with the patent-infringement portion of a lawsuit and those associated with other portions of the same suit, and thus that we should consider the overall monetary reward for bringing the suit as a whole.[120] On the other hand, prejudgment and postjudgment interest were excluded from calculated

113. Evidence of monetary awards was sought via Lex Machina's records for the patent cases at issue both by examining Lex Machina's own compiled records of case outcomes, which listed some of the monetary awards found and by searching case dockets electronically for terms such as "damages," "costs," and "fees." Records of damages could also turn up through less systematic means, such as observation of a damages award in a court order that was being reviewed for another purpose. Again, a research assistant made an initial search for records of monetary awards for a substantial number of cases, but the author has now made a pass through all the cases for this purpose. Nonetheless, human limitations and the difficulty of searching for evidence of such awards, even electronically, in Lex Machina suggests a substantial chance that the record of monetary awards is incomplete.

114. *E.g.*, Ocean Innovations, Inc. v. Quarterberth, Inc., No. 1:03-CV-00913, slip op. at 2 (N.D. Ohio May 22, 2012) (awarding over $580,000 in attorney's fees); ReedHycalog UK, Ltd. v. Diamond Innovations Inc., No. 6:08-CV-325, slip op. at 15–16 (E.D. Tex. Aug. 12, 2010) (awarding over $8 million in attorney and expert fees).

115. *E.g.*, Bill of Costs, ReedHycalog UK, Ltd. v. Diamond Innovations Inc., No. 6:08-CV-325 (E.D. Tex. Aug. 30, 2010) (No. 401) (awarding $63,702.38 in costs).

116. *E.g.*, Retractable Techs., Inc. v. Occupational & Med. Innovations, Ltd., No. 6:08-CV-120, slip op. at 1 (E.D. Tex. Mar. 4, 2010) (awarding nearly $3 million in compensatory damages for a combination of trade secret misappropriation and patent infringement).

117. *E.g.*, Metra Elecs. Corp. v. New AMA Grp., Inc., No. CV 10-5796PSG, slip op. at 5, 9 (C.D. Cal. Dec. 28, 2010) (awarding $10,000 in damages for violating trademark laws).

118. *E.g.*, Euro-Pro Operating LLC v. Marco Polo Trading Co., No. CV 10-05474, slip op. at 1 (C.D. Cal. Dec. 2, 2010) (awarding over $100,000 for copyright infringement and attorney's fees).

119. *E.g.*, Polytree (H.K.) Co. v. Forests Mfg., Ltd., No. 1:09-cv-03377-WSD, slip op. at 23 (N.D. Ga. Dec. 20, 2010) (awarding more than $2 million for false marking). Until late 2011, the U.S. Patent Act "authorized '[a]ny person,' regardless of any plausible claim of personal injury, to sue to enforce the Act's prohibition of a false indication that a good is subject to U.S. patent protection." John M. Golden, *Patent Privateers: Private Enforcement's Historical Survivors*, 26 HARV. J.L. & TECH. 545, 548 (2013).

120. Because the main finding is that the monetary-award numbers are fairly small, the inclusion of non-patent-infringement damages is, relatively speaking, a conservative move that only makes this finding stronger.

monetary awards because the values of such awards of interest appear to be very inconsistently recorded in readily available court filings.[121]

In any event, with interest payments excluded from the size of the awards,[122] the total monetary award for the forty-five cases in which numerical values for such awards were identified[123] ranged from $500 to just over $30 million, with the median award being $250,000. Excluding the four identified awards that appeared in cases involving a 2010 preliminary injunction does not affect the range or the median. After nine cases centering on biomedical-substance technology or pure ornamental design are excluded, the maximum monetary award falls to just over $16 million, but the median award rises to approximately $350,000. In any of these three sets of awards—the full set, the permanent-injunction-only subset, and the subset with biomedical-substance technology and pure ornamental design excluded—the average award is less than $2.5 million, but relatively little weight should be attached to such averages because the standard deviations for all three of these samples are each more than $3.5 million and, more generally, the distributions of patent-infringement damages and patent value tend to be strongly skewed.[124]

Notably, awards of fees and enhanced damages dominated the only two awards in cases not involving biomedical-substance technology that exceeded $10 million.[125] An award of approximately $16 million, which

---

121. Sometimes courts provide an exact amount for at least one form of interest they plan to award. *E.g.*, Marine Polymer Techs., Inc. v. HemCon, Inc., No. 06-cv-100-JD (D.N.H. Mar. 25, 2011) (specifying "pre-judgment interest in the amount of $3,916,371"). Sometimes they do not specify the overall amount although they might specify the relevant interest rate. *E.g.*, *id.* (declining to indicate the quantity of postjudgment interest beyond stating that such interest would "accru[e] on the entire amount owed as permitted by 28 U.S.C. § 1961"); Polytree (H.K.) Co., Ltd. v. Forests Mfg., Ltd., No. 1:09-cv-03377-WSD, slip op. at 39–40 (N.D. Ga. Dec. 20, 2010) (specifying the rate for an award of prejudgment interest but not specifying the resulting amount of interest).

122. Interest payments are excluded because of inconsistent availability of information about the size of interest payments across cases.

123. Two of these cases involving identified monetary awards are associated with multiple injunctions in the data set because multiple injunctions were sometimes issued in the same patent-infringement case. In three additional cases, there was evidence of monetary awards, but the amounts could not be determined.

124. *See* Michael J. Mazzeo et al., *Explaining the "Unpredictable": An Empirical Analysis of U.S. Patent Infringement Awards*, 35 INT'L REV. L. & ECON. 58, 63 (2013) (reporting a strongly skewed distribution of patent-infringement damage awards and noting that "[p]revious research has consistently found that the distribution of patent values . . . exhibits a similar skew").

125. *See* Ocean Innovations, Inc. v. Quarterberth, Inc., No. 1-03-CV0913, slip op. at 2–3 (N.D. Ohio July 12, 2011) (awarding approximately $15 million in compensatory and enhanced damages, as well as unspecified attorney's fees); Ocean Innovations, Inc. v. Quarterberth, Inc., No. 1:03-CV-00913, slip op. at 2 (N.D. Ohio May 22, 2012) (awarding over $580,000 in attorney's fees); ReedHycalog UK, Ltd. v. Diamond Innovations Inc., No. 6:08-CV-325, slip op. at 19 (E.D. Tex. Aug. 12, 2010) (awarding over $8 million in attorney and expert fees and over $4 million in enhanced damages); *see also* Defendants' Motion for New Trial at 2, Ocean Innovations, Inc. v. Quarterberth, Inc., No. 1:03-CV0913 (N.D. Ohio July 26, 2011) (arguing

came in a case involving patents on a dry-dock assembly, mainly resulted from multiplying lost-profit damages of more than $5 million by the maximum statutory factor of three.[126] The next highest award, one of nearly $13 million, involved what in the 2010 data set seems relatively anomalous, a facially high-tech innovation featuring a new form of polycrystalline diamond for use in tipping a drill.[127] The total of nearly $13 million in monetary awards resulted from trebling stipulated damages of $1.5 million and then adding $8.3 million in attorney and expert fees.[128] In short, outside biomedical substance and pure-design cases, the maximum compensatory damages that were observed in any case in the data set associated with a 2010 permanent injunction amounted to less than $11 million.[129]

Further analysis of the damages figures reinforces the sense that they are generally modest. Although there are ten cases in the 2010 data set that feature both a permanent injunction and a monetary award of at least $2 million, less than one-third of the sample of total awards identified in permanent-injunction cases—only 13 of the 41 awards—amounted to more than $650,000. In other words, less than one-third of the monetary awards in such cases exceeded the median out-of-pocket litigation costs that a 2011 American Intellectual Property Law Association (AIPLA) survey suggested a single side should expect to bear in a patent-infringement litigation suit with less than $1 million at risk.[130] Indeed, the $650,000 median for

---

against the "manifest injustice" of the defendants' collectively "facing a Judgment of $15,627,000").

126. Ocean Innovations, Inc. v. Quarterberth, Inc., No. 1:03CV0913, slip op. at 8–9 (N.D. Ohio May 14, 2010).

127. ReedHycalog UK, Ltd. v. Diamond Innovations Inc., No. 6:08-CV-325, slip op. at 2, 15–19 (E.D. Tex. Aug. 12, 2010).

128. *Id.*

129. Only one of the seven biomedical- substance or pure-design cases for which award numbers were identified involved known monetary awards totaling to $500,000 or more. On the other hand, in that one case, which involved biomedical-substance technology, damages amounted to over $30 million. *See* Docket Entry No. 462, Marine Polymer Techs., Inc. v. HemCon, Inc., No. 06-cv-100-JD (D.N.H. Dec. 21, 2010) (reporting the award of "additional damages in the amount of $879,988," "pre-judgement interest . . . in the amount of $3,916,371," and post-judgment interest of an unspecified amount); Marine Polymer Techs., Inc. v. HemCon, Inc., No. 06-cv-100-JD (D.N.H. Apr. 29, 2010) (awarding $29,410,246 in compensatory damages by jury verdict). The lack of further observations of additional large monetary awards in the biomedical-substance cases in the data set presumably reflects the fact that most of these cases involved Abbreviated New Drug Applications and thus were cases in which the accused product presumably had not yet been made available and compensatory damages were inapplicable. *See* Golden, *supra* note 76, at 1452 n.225 (observing that 35 U.S.C. § 271(e) enables the filing of a patent-infringement suit based on the filing with the Food and Drug Administration of an application for regulatory approval of a drug known as an Abbreviated New Drug Application or ANDA).

130. *See* AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY 2011, at 35 (2011) (reporting survey results indicating that the median estimated litigation cost for cases in which less than $1 million was at risk was $650,000 in 2009 and 2011).

litigation costs dwarfs the median figures for monetary awards reported above. Even if respondents to the AIPLA survey are not time-discounting litigation costs in a way that makes them fully comparable to monetary awards that exclude interest, the extent to which an apparently reasonably conservative estimate for litigation costs exceeds the median levels for observed monetary awards raises questions about how and why the cases in question were litigated.

There are a number of potential explanations for why patentees litigate cases that yield median damage awards substantially less than median expected attorney's fees. Patentees could hope to obtain an injunction that is far more valuable than any damages, they could hope for greater damages than they will ultimately receive, or they could hope to obtain an advantageous settlement of the case before most of the expected attorney's fees are incurred.

With respect to this last possibility, an important point is that, even if a patent suit is settled shortly after the end of discovery, AIPLA survey numbers suggest that the observed monetary awards would still fail to greatly exceed typical expected litigation costs. The AIPLA survey indicates that, in cases with less than $1 million at risk, the median value of litigation costs through the end of discovery would already be $350,000,[131] a figure about equal to the higher of the median monetary awards reported above. Moreover, if more than $1 million is at risk, the AIPLA survey suggests each side should expect median litigation costs through discovery that are substantially higher.[132] Thus, if parties tend to view substantially more as at risk than courts tend ultimately to award, the apparently unfavorable mismatch between likely litigation costs and victorious patentee's actual monetary awards would likely be even worse. And recall that this is true despite the fact that the monetary-award amounts used for comparison purposes are arguably artificially inflated by their inclusion of awards of non-patent-infringement damages, additional awards that patentees might undertake significant additional litigation costs to obtain.

If the numbers for identified monetary awards are nonetheless essentially representative of monetary awards associated with patent-infringement injunctions, the relatively low size of most of these numbers suggests that even legally triumphant patent holders might tend to be "net litigation losers"—i.e., more impoverished than enriched by litigation—*unless* nonmonetary gains from their litigation success, such as gains associated with permanent injunctions or reputation, have substantial private value. In other words, injunctions, other nonmonetary benefits, or indirect monetary benefits from winning a patent-infringement lawsuit

131. *Id.*

132. *Id.* (reporting survey results indicating, for example, that median estimated litigation costs at the end of discovery in cases which $1–$25 million was at risk was $1.5 million).

might commonly be vital to making that lawsuit economically worthwhile for a victorious patentee. At least if there is not a huge mismatch between a patentee's expected damages and damages that are actually awarded, such nonmonetary benefits or indirect monetary benefits might be even more crucial to making patent litigation worthwhile for someone contemplating it from an *ex ante* perspective, when victory is likely to be far from certain.

In short, the monetary awards known to be associated with injunctions in the 2010 data set are generally consistent with the notion that these injunctions typically target relatively mundane, mechanical technologies having limited commercial value. None of the total monetary awards identified come close to the stratospheric several-hundred-million-dollar awards that tend to grab headlines in patent-related policy debates.[133] Even with inclusion of attorney's fees, costs, and monetary awards for non-patent-infringement causes of action, the median identified award associated with cases in the 2010 injunction data set is less than one-fifth of the $1.8 million level that PricewaterhouseCoopers reported as the median for 2010 patent-litigation damages alone.[134]

One might object that comparison to the PricewaterhouseCoopers median is unfair because some of the awards relating to 2010 injunctions do not include patent-infringement damages at all but instead reflect only attorney's fees, costs, or a non-patent-infringement basis for damages or fines. But excluding these "incomparable" awards does not improve the comparison very substantially: after excluding monetary awards relating to 2010 injunctions that are known not to reflect patent-infringement damages and after also excluding two additional awards of $5,000 and $500 that are unexplained in the relevant consent judgments,[135] one obtains a set of 35 awards that range from just under $28,000 to just over $30 million with a median of $423,240, a median that is still less than one-fourth the median

133. *See, e.g.*, Rich Lord, *Judge Adds $366 Million to Patent Award in CMU's Favor*, PITTSBURGH POST-GAZETTE, Apr. 1, 2014, http://www.post-gazette.com/local/city/2014/04/01/Judge-adds-hundreds-of-millions-to-patent-award-in-CMU-s-favor/stories/201404010163 (reporting that a district court judge had "added $366 million to a billion-dollar-plus patent infringement award won by Carnegie Mellon University" for infringement of computer-chip technology); Andrea Change & Jessica Guynn, *Apple Prevails Over Samsung in High-Stakes Patent Trial, Will Get $1 Billion*, L.A. TIMES, Aug. 24, 2012, http://articles.latimes.com/2012/aug/24/business/la-fi-tn-apple-samsung-verdict-20120824 ("A federal jury has sided with Apple over rival Samsung . . . and has awarded Apple more than $1 billion in damages.").

134. PRICEWATERHOUSECOOPERS, 2011 PATENT LITIGATION STUDY: PATENT LITIGATION TRENDS AS THE "AMERICA INVENTS ACT" BECOMES LAW 9 (Oct. 2011), http://www.pwc.com/en_US/us/forensic-services/publications/assets/2011-patent-litigation-study.pdf; *see also* Mazzeo et al., *supra* note 124, at 63 tbl.1 (listing median patent-infringement damage awards between $1 million and $11 million for individual years from 1995 through 2008).

135. Batesville Servs., Inc. v. S. Rain Casket & Funeral Supply, No. 2:09-CV-257-PPS-APR, slip op. at 7 (N.D. Ind. July 15, 2010) (awarding $5,000); Caught Fish Enters., LLC v. Blaze Wharton Constr., Inc., No. 09-cv-02878-PAB-KMT (D. Colo. Feb. 24, 2010) (awarding $500).

for the 2010 patent-litigation damage awards reported by PricewaterhouseCoopers.

If one believes higher stakes are likely to lead to more contentious litigation, one might expect the median awards to be higher in cases in which a 2010 injunction was actively opposed. The medians for such cases are indeed somewhat higher but not dramatically so. The relevant median value is nearly $362,000 for the set of monetary awards identified for all cases involving actively opposed 2010 injunctions, and the relevant median value is $570,536 for a twenty-case subset of that twenty-four in which each case features a compensatory award for patent-infringement damages, instead of only an award of costs. The $570,536 figure is the highest median that we have seen so far. Nonetheless, according to the AIPLA survey data, even this figure is less than the median total litigation cost for one side of a patent-infringement suit worth $1 million or less.[136]

In sum, no matter how the monetary awards data is sliced it seems to suggest that patent-infringement cases in which injunctions are obtained are typically not patent-infringement cases in which very large monetary awards are especially likely. The observed monetary awards are typically lower than both median patent-infringement damage awards overall and median estimated litigation costs for relatively low stakes patent litigation. Somewhat counterintuitively, cases in which courts issue patent-infringement injunctions appear mainly to be cases involving relatively modest monetary stakes and relatively mundane technologies that have a substantial nineteenth-century feel. At least at first glance, this seems mysterious. The next subsection indicates that the mystery is even deeper than it might immediately appear.

3. Deepening the Mystery.—One possible explanation of the relatively modest apparent stakes for most of the cases in the 2010 injunction data set is a "base rate" explanation. When one looks at the world outside the courthouse, there might be an enormous number of situations where parties find themselves in patent-related disputes involving relatively modest stakes. The base rate of such disputes might be so large that, even after rational settlement of the overwhelming majority of these disputes either without litigation or without an injunction, there are a good number of disputes that, for whatever idiosyncratic reasons, go to court and mature to a point where an injunction issues. The key predicate for this explanation is that the subset of patent-infringement suits that yield injunctive relief is a small fraction of the whole set of suits that are filed,[137] and this relatively

136. *Supra* text accompanying note 130.

137. Compare the annual numbers of patent-infringement lawsuits filed in U.S. district courts from 2000 through 2011—uniformly more than 2,000 per year, GAO REPORT, *supra* note 1, at 14 fig.2, to the 143 patent-infringement injunctions identified for the year 2010, *supra* text

small fraction could substantially reflect otherwise relatively small deviations from generally valid intuitions or models for litigation and settlement.

But residual idiosyncrasy or happenstance might not suffice to explain the cases in the 2010 injunction data set. As a group, these cases bear many indicia of deliberately considered litigation projects. For each of the subsets of forty actively opposed, eighty-two consented-to, and twenty-one otherwise-unopposed injunctions, the cases yielding these injunctions feature a median number of two asserted patents. This fact might suggest that patentees were typically suing on the basis of a patent portfolio deliberately constructed for more effective enforcement.[138] Even more suggestive, however, are figures for (1) the overall duration of the patent cases in which 2010 injunctions appeared and (2) the number of *other* cases in which asserted patents were similarly featured.

Values for the overall duration of relevant patent-infringement cases were obtained by using Lex Machina's numbers for the days to termination of district court patent cases.[139] According to these numbers, the median length of suit associated with actively opposed injunctions was 1,097 days or about 3.0 years. The median length for consented-to injunctions was 506.5 days or about 1.4 years. The median length for otherwise-unopposed injunctions was 499 days, also about 1.4 years. A good part of the extra median length for actively opposed injunctions might reflect the fact that an appeal to the U.S. Court of Appeals to the Federal Circuit followed more than 80% (33 of 40) of the actively opposed injunctions whereas the rate of subsequent appeals was less than 5% (4 of 82) with consented-to injunctions and 0% (0 of 21) with otherwise-unopposed injunctions.

Most notably, for purposes here all of the median lengths of suit—whether for suits associated with actively opposed, consented-to, or otherwise-unopposed injunctions—are substantial. Indeed, all of the medians exceed the fourteen-month average length of litigation reported by Colleen Chien for high-technology "sport of king suits" between publicly

---

accompanying note 76. *See also* Kesan & Ball, *supra* note 52, at 280 tbl.10 (finding that less than 9% of cases filed in 1995, 1997, and 2000 resulted in permanent injunctions).

138. *Cf.* Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 5–6 (2005) (contending that "[t]he true value of patents inheres not in their individual worth, but in their aggregation into a collection of related patents—a patent portfolio").

139. For purposes of measuring the overall duration of litigation, Lex Machina numbers for case duration are imperfect because termination of a district court patent case could reflect a transfer to another district, rather than a true end to a lawsuit. But one might expect that the transfer rate for patent cases is relatively small in cases in which a district court has already issued an injunction—a prerequisite for the case appearing in the 2010 injunction data set. Overall transfer rates, which presumably mainly reflect transfers relatively early in litigation, are already relatively small: Paul Janicke has reported that, in 2006 and 2007, overall transfer rates for patent cases were no more than about 8%. Paul M. Janicke, *Venue Transfers from the Eastern District of Texas: Case by Case or an Endemic Problem?*, LANDSLIDE, Mar.–Apr. 2010, at 16, 18 tbls.2 & 3.

listed companies during the years 2000–2008.[140] A fortiori, these medians exceed the roughly ten-month median lengths reported by Jay Kesan and Gwendolyn Ball for patent suits filed in 1995, 1997, and 2000.[141] Intriguingly, the roughly one-and-a-half year median lawsuit length associated with unopposed injunctions might suggest that, even when injunctions are unopposed, they tend to issue only after a substantial period in which discovery can occur,[142] along with the potentially hundreds of thousands of dollars in costs that discovery can entail.[143] Regardless of the validity of this suggestion, the relatively large median lawsuit lengths associated with actively opposed, consented-to, and otherwise-unopposed injunctions make clear that, despite the relative mundanity of their subject matter, the lawsuits associated with the 2010 injunctions were, generally speaking, relatively long lasting.

Nor were the lawsuits associated with the 2010 injunctions typically isolated affairs. At least one patent in each of these lawsuits tends to have been asserted in one or more additional suits. In short, the patents asserted in association with the 2010 injunctions were commonly part of a broader campaign of patent enforcement.

The 2010 injunction data set was expanded to include values for the number of "other-case assertions" for the most frequently litigated patent associated with each injunction. These values were based on Lex Machina's figures for the number of other cases in which patents were asserted. The median numbers for such "other-case assertions" were then tabulated for the categories of actively opposed, consented-to, and otherwise-unopposed injunctions. For all these subcategories, the median

---

140. Chien, *supra* note 15, at 1593, 1605 ("Sport of king suits lasted 14.0 months on average."). At least in association with the 2010 injunction data set, median lawsuit lengths, rather than average lawsuit lengths, seem the better figures to use because the relevant standard deviations for lawsuit lengths are all more than 60% the size of the associated averages. Moreover, the average lawsuit lengths for actively opposed, consented-to, and otherwise-unopposed injunctions, respectively, are all longer than the respective median lawsuit lengths. Thus, comparison to Chien's figures of average lawsuit lengths for these subcategories of the 2010 data set would only further emphasize the relatively large length of litigation associated with the 2010 injunctions.

141. Kesan & Ball, *supra* note 52, at 281–82 (reporting median lengths of 298 days, 299 days, and 295 days for patent-infringement lawsuits filed in 1995, 1997, and 2000, respectively).

142. At least one attorney has suggested that one can expect fact discovery in a patent-infringement lawsuit to conclude about one year after the case is filed, with a trial, if there is one, potentially occurring about a half a year later. *See* Catherine Rajwani, *Controlling Costs in Patent Litigation*, 16 J. COM. BIOTECHNOLOGY 266, 267–68 tbl.1 (2010). Because the median time to litigation in patent cases was about 2.5 years in 2010, PRICEWATERHOUSECOOPERS, *supra* note 134, at 27 fig.7b, such time estimates might be overly optimistic. But if we assume that delays from such a standard schedule are evenly distributed in time, one ends up with a time for conclusion of fact discovery—about 1.5 years or roughly 550 days—that corresponds approximately to the median lawsuit durations associated with consented-to or otherwise-unopposed injunctions.

143. *See supra* text accompanying notes 131–32.

number is nonzero, although the median number does decline as one moves from actively opposed injunctions to unopposed injunctions. The median is three for actively opposed injunctions, two for consented-to injunctions, and one for otherwise-unopposed injunctions. Though the relative sizes of these medians might be interesting in themselves,[144] the crucial fact for present purposes is that all the medians are nonzero. Hence, if the patent holders in question are committing "rational profit-maximizer error" in pursuing the observed lawsuits, there seems a substantial possibility that they are making this error repeatedly.

C. *Explaining Mundanity in the "Sport of Kings"*

This Article cannot hope to offer definitive theories of why the injunctions in the 2010 data set appear typically to be associated with seemingly modest stakes and relatively mundane, nineteenth-century-style technologies. But the following subsections offer some conjectures, the first of which focuses on the possibility that stakes might be higher than they at first seem and the second of which suggests that, under certain circumstances, high stakes might promote, rather than discourage, settlement.

1. Patents' Mittelstand*?*—Earlier sections have characterized the technologies associated with the 2010 patent-infringement injunctions as relatively mundane. But perhaps many of these injunctions are more informatively characterized as targeting niche technologies of a less than maximally capital-intensive kind, technologies that a small or medium-sized company might hope to dominate and popularize. Although these "middling" technologies are unlikely to attract as much cash or even as much conscious attention as headline-grabbing high tech, they might, in the aggregate, make very substantial contributions to social welfare. Perhaps more to the present point, these middling technologies might often offer ample opportunities for individuals and their associated businesses to become rich.

Many small and medium-sized patent holders might hope to follow the example of Germany's much lauded *Mittelstand*, an assortment of small- and medium-sized firms that tend to succeed by concentrating "on market niches, typically in staid-sounding areas such as mechanical engineering

144. The fact that the median for actively opposed injunctions is larger than those for unopposed injunctions might suggest, consistent with Bayesian intuition, that, after observing a patent holder's failure to come to terms with an accused infringer in one case, we should raise our estimate of the probability that the patent holder will file suit against others, the initial observation having suggested a tendency toward litigation that is likely greater than that for patent holders who have managed to obtain consented-to injunctions.

rather than sexy ones like software."[145] Patents could play an important role in supporting such enterprises by helping to insulate their technologies from easy imitation by multinational giants[146] and by giving them a lever to hold back more similarly sized rivals who seek to occupy the same market niche.

The *Mittelstand* explanation could help reconcile significant portions of the 2010 injunction data set with Part II's rational profit-maximizer model. Although many technologies targeted by 2010 injunctions might seem mundane and even unimportant, a number of these technologies appear directed to niche markets that patent owners might have reasonably believed to be highly valuable or at least to have high-value potential. The relatively small size and peculiarity of such niche markets could make the prospective and even current values of products or processes within them especially difficult to assess, with the result that opposing parties are especially likely to disagree over the size of litigation stakes and thus to have special difficulty settling their disputes. Further, patent-infringement litigation might have a particularly high "external value"[147] for companies heavily invested in establishing or maintaining a tight hold on a market niche. For such companies, a well-advertised victory in litigation might be particularly useful in deterring potential competitors.

There is anecdotal evidence to support the *Mittelstand* theory. Consider, for example, the previously mentioned lawsuit over caskets with memorabilia drawers.[148] The company asserting the casket patents, Batesville Services Inc., is a very successful medium-sized firm[149] that styles itself the "clear leader in the North American death care industry."[150] For some time, Batesville has apparently been "North America's largest provider of caskets and funeral products," "command[ing] about 40 percent market share of a $1.5 billion industry."[151] Although a *Forbes* post wryly

---

145. *Mittel-management: Germany's Midsized Companies Have a Lot to Teach the World*, ECONOMIST Nov. 27, 2010, at 74, 74, *available at* http://www.economist.com/node/17572160 (noting that "[t]he *Mittelstand* dominates the global market in an astonishing range of areas: printing presses . . . , license plates . . . , snuff . . . , shaving brushes . . . , flycatchers . . . , industrial chains . . . and high-pressure cleaners").

146. *Cf. id.* (noting that *Mittelstand* companies "focus on market niches").

147. *See supra* text accompanying notes 132–33.

148. *See supra* text accompanying note 11.

149. *Cf. The Mighty Middle: Medium-Sized Firms Are the Unsung Heroes of America's Economy*, ECONOMIST Oct. 20, 2012, at 59, 59, *available at* http://www.economist.com/news-/business/21564893-medium-sized-firms-are-unsung-heroes-america%E2%80%99s-economy ("America has around 197,000 medium-sized firms, defined as those with annual revenues between $10m and $1 billion.").

150. Kimberly K. Ryan, *Who We Are: Welcome to Batesville!*, BATESVILLE, https://www.batesville.com/who-we-are.

151. Alexander Coolidge, *Casket Maker Evolves into Major Manufacturer*, USA TODAY, Dec. 30, 2012, 59, http://www.usatoday.com/story/money/business/2012/12/24/ hillenbrand-casket-maker-expands-manufacturing/1789565/. *See* Seth Lubove, *Six Feet Under*, FORBES (Oct. 31, 2005, 12:00 AM), http://www.forbes.com/forbes/2005/1031/137.html ("The dominant

described Batesville as "attribut[ing] its lethal success to high quality, great value and customer service,"[152] Batesville has also used patents to defend its turf. Batesville asserted its casket-with-memorabilia-drawer patents in at least four different district court suits in the four years from 2006 through 2009.[153] In 2010, Batesville asserted those patents before the International Trade Commission.[154]

Other patent holders in the 2010 data set might likewise have either achieved or hoped for enough dominance of their own market niche to justify costly litigation to exclude rivals. Coplaintiffs Flexiteek Americas, Inc. of Florida and Flexiteek International AS of Norway asserted a patent on technology that might seem utterly pedestrian: the technology basically amounts to a form of faux-teak flooring.[155] Nevertheless, as of early 2014, Flexiteek International apparently had multiple distributors on all continents but Africa and Antarctica.[156] This fact suggests that Flexiteek's overall share of the world market for "synthetic teak" for yachts[157] or other uses might be substantially more than the $1 to $2.5 million annual revenue estimated for Flexiteek Americas alone.[158] One at least can imagine how Flexiteek might have convinced itself of the economic rationality of paying for patent enforcement that might solidify its hold on a potentially globe spanning, multimillion-dollar niche.

Can such a story be told for the two patent suits in the 2010 data set that centered on a patent for a pet bath with a rotating ramp?[159] This seems less likely. True, the plaintiff in those cases, TriStar Metals, Inc., is

---

player in the $1.4 billion-a-year U.S. market, Batesville has $650 million in annual sales, more than three times the amount of the number two rival . . . .").

152. Lubove, *supra* note 151 (emphasis added).

153. Complaint and Demand for Jury Trial, Batesville Servs., Inc. v. Luquillo Funeral Home, No. 09-1908 (D.P.R. Sept. 9, 2009); Complaint and Demand for Jury Trial, Batesville Servs., Inc. v. S. Rain Casket & Funeral Supply, No. 2 09CV.257 (N.D. Ind. Aug. 25, 2009); Batesville Servs., Inc. v. Cochran Funeral Homes, Inc., No. 2:06-cv-0162 (N.D. Ga. Oct. 19, 2006); Complaint and Demand for Jury Trial, Batesville Servs., Inc. v. Covington Int'l, LLC, No. 1:06-cv-0107TLS (N.D. Ind. Apr. 5, 2006).

154. Certain Caskets, Inv. No. 337-TA-725, USITC Pub. 20426 (Dec. 13, 2010) (Final) (noting that an investigation was launched "based on a complaint filed by Batesville Services, Inc., of Batesville, IN" on June 8, 2010).

155. *See* U.S. Patent No. 6,895,881 col. 1 ll. 11–25 (filed June 19, 2000) (issued May 24, 2005) (describing a "shape conforming surface covering" that is "generally intended to imitate a type of deck made by teak, mahogany, oregon pine etc.").

156. *Distributors*, FLEXITEEK, http://www.flexiteek.com/distributors.

157. *Flexiteek—Products*, FLEXITEEK, http://www.flexiteek.com/products (describing Flexiteek as "a synthetic teak panel" that is "sold as complete welded and waterproofed panels to boat manufacturers, boat yards or to the yacht owner").

158. *Flexiteek Americas*, MANTA, http://www.manta.com/c/mmlw944/flexiteek-americas ("[C]urrent estimates show this company has an annual revenue of $1 to $2.5 million and employs a staff of approximately 5 to 9.").

159. Tristar Metals, Inc. v. Groomer's Best, Inc., No. 4:10-CV-508-Y (N.D. Tex. Sept. 27, 2010); Tristar Metals, Inc. v. Edemco Dryers Inc., No. 4:10-cv-044-A (N.D. Tex. May 20, 2010).

currently estimated to have a far from trivial "annual revenue of $5 to $10 million and [to] employ[] a staff of approximately 20 to 49."[160] But pet bathing stations are only one form of equipment that TriStar supplies.[161] Putting these facts together, one might question how TriStar could justify the cost of multiple patent lawsuits—even if pursued in a "[b]are-bones" manner[162]—to protect a market niche that seems likely to have accounted for only a fraction of an estimated $5 to $10 million in overall annual revenue.

This might be an example of the exception proving the rule. Notably, the durations of TriStar's lawsuits fall well short of the median for the consented-to injunction category in which the TriStar lawsuits appear. Recall that the median lawsuit length for that category is 506.5 days. TriStar's two cases lasted 69 days and 118 days, respectively. Consequently, difficulty explaining how TriStar could justify extended suit based on its pet bath patent can be overcome by observing that, as matters turned out, TriStar did not pursue very extended suits on that patent. TriStar's patent-enforcement campaign might have been rationally geared toward a strategy of quick settlement that avoided high litigation costs.

In short, attention to the more detailed litigation histories and business circumstances associated with 2010 injunctions might help reconcile a good part of their subject matter's apparent mundanity with the expectations of a rational profit-maximizer theory for litigation and settlement. There might be a patent law *Mittelstand* of niche companies that have good reason to pursue patent litigation with vigor despite stakes that are often mere shadows of the stakes in high-end pharmaceutical, smartphone, or semiconductor litigation. In somewhat different ways, the Batesville, Flexiteek, and TriStar examples all suggest how this can be true.

2. Cases "Too Big to Litigate."—The relative mundanity of the 2010 injunction data set might be considered from a different angle. Instead of focusing on what is there, we could focus on what is missing—both from that data set and from Part II's rational profit-maximizer model. In light of how damage awards of several hundred million dollars tend to dominate the news,[163] the lack of any massive monetary awards in the data set is notable. This absence suggests another potential explanation for mundanity.

---

160. *Tri-Star Metals Inc.*, MANTA, http://www.manta.com/c/mm5lb7b/tri-star-metals-inc; *see also About*, TRISTAR VET, http://www.tristarvet.com/about/ (describing TriStar Vet as "a division of TriStar Metals" with "[a]bout 25 employees on our staff" whose "customers are small business owners just like us").

161. *See Tri-Star Metals Inc.*, *supra* note 160 (describing TriStar as a member of multiple business categories, including "Commercial Cooking and Foodwarming Equipment"); *About*, *supra* note 160 (listing a variety of products, including sinks, tables, cabinets, cages, kennels, "Cat Condos," "Work Islands," and "Grooming Tubs").

162. Farrell & Merges, *supra* note 74, at 949.

Perhaps, instead of monotonically rising with stakes, the likelihood of protracted litigation can fall after a certain height of stakes is reached. After a certain point, some technologies might be "too big to litigate" in the sense that a litigant might feel it simply risks too much if it litigates all the way to an adverse decision that could seriously disrupt an otherwise extremely profitable business. In such cases, an alleged infringer might be particularly likely to settle before an actively opposed injunction is issued, with the terms of any money transfer being kept confidential to limit the encouragement of licensing demands by others.

An alternative form of the "too big to litigate" explanation could derive from observation that, given the high costs of patent-infringement litigation, a rational profit-maximizer model might predict that virtually all cases should settle short of a permanent injunction's issuing. As discussed earlier, however, personal acrimony can prevent rational settlement of disputes. High enough monetary stakes or high enough litigation costs associated with such stakes[164] might commonly nudge parties "to 'get over' their hostility and distaste for bargaining."[165] At some point, indulgence in economic irrationality might simply be too costly to sustain.

In short, for multiple reasons, there seems a possibility that the relationship between stakes and protracted litigation could often assume an inverted "U-shape." Initially as stakes rise, the probability of protracted litigation rises as the increased stakes overtake expected litigation costs and amplify differences in expectations about case outcomes. Nevertheless, at some point as stakes continue to rise, the probability of especially protracted litigation actually begins to fall.

Of course, this inverted U-shape is only a possibility. The failure to see many high-stakes suits in the 2010 data set might largely be a quirk of that year plus a more general scarcity of high-value, cutting-edge technologies compared to low-value, mundane technologies or ornamental designs. 2010 preceded a wave of judgments in the "smartphone patent wars" that have featured claims of billion-dollar stakes and at least one proportionate money judgment.[166] For a more authoritative sense of the

163. *See supra* note 133 and accompanying text.

164. *See supra* note 132 and accompanying text.

165. Farnsworth, *supra* note 68, at 310.

166. *See* Chris O'Brien, *Apple and Samsung Make Opening Statements in Second Patent Case*, L.A. TIMES, Apr. 1, 2014, http://www.latimes.com/business/technology/la-fi-tn-apple-and-samsung-make-opening-statements-in-second-patent-case-20140401,0,3564352.story#axzz2zlbZpsd6 (noting that a jury had "awarded Apple $1 billion in its first patent trial against Samsung" and that, in the present case, "Apple is asking jurors to award more than $2 billion"); Michael J. De La Merced, *Did Google Really Lose on Its Original Motorola Deal?*, DEALBOOK, N.Y. TIMES (Jan. 29, 2014, 6:32 PM), http://dealbook.nytimes.com/2014/01/29/did-google-really-lose-on-its-original-motoroladeal/?_php=true&_type=blogs&smid=tw-share&_r=0 (discussing Google's payment of $12.5 billion to acquire Motorola Mobility and its associated patent rights).

technologies and monetary awards associated with patent-infringement injunctions, one should study enjoined technologies and associated monetary awards over a series of years.

A further explanatory possibility is that the nineteenth-century feel and apparently limited-stakes nature of the 2010 injunction cases are effects of the Supreme Court's 2006 decision in *eBay Inc. v. MercExchange, L.L.C.*[167] This decision can be understood to have effectively limited the availability of injunctions for many complex, multicomponent technologies that might be viewed as particularly characteristic of the twenty-first century.[168] At least with the benefit of hindsight, the predictable result might be that injunctions have come to target mainly more mundane, nineteenth-century-style technologies.

This *eBay*-focused explanation can be viewed as consistent with a "too big to litigate" hypothesis. Legal reforms, and new institutional arrangements might be alternate ways in which "too big to litigate" inclinations manifest themselves. Once certain forms of innovation reach a particularly high level of value, traditionally accepted limitations of patent law's private-enforcement regime—its unpredictability, high private costs, and liability to deviation from distributional equity[169]—might tend to become intolerable, with high stakes generating enough motivating force for changes, either to the patent regime itself or to its practical effects. Robert Merges has long chronicled how private-enforcement problems can drive private actors to generate patent pools or other arrangements that effectively soften the patent regime's hard edges.[170] The dominance of a patent *Mittelstand* among cases yielding patent-infringement injunctions might reflect a larger dynamic under which, in "inverse-Demsetzian"

---

167. 547 U.S. 388 (2006) (proclaiming the applicability of a four-factor test to the question of whether a district court should issue a permanent injunction against patent infringement). *See generally* Mark P. Gergen, John M. Golden & Henry E. Smith, *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203 (2012) (discussing wide-ranging effects of the *eBay* decision).

168. *See eBay*, 547 U.S. at 396–97 (Kennedy, J., concurring) ("When the patented invention is but a small component of the product . . . and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.").

169. *Cf.* Golden, *supra* note 119, at 587 (discussing commonly acknowledged drawbacks of private-enforcement regimes).

170. *See* Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 185, 188 (2004) (describing private engagement in "Property-Preempting Investments" such as the Merck Gene Index, a "database of gene sequences corresponding to expressed human genes" made public by Merck Pharmaceuticals "to preempt the threat that patents would stall research projects that depended on gene sequence data" (internal quotation marks omitted)); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1340–42 (1996) (describing how patent pools can "regularize technology transactions" and effectively substitute "private liability rules" for public property rules).

fashion, certain forms of technology or innovative activity become so valuable that "it becomes economic" to engage in some form of de-propertization that expands the room for work within an intellectual commons.[171]

IV. Conclusion

This Article's study of 2010 patent-infringement injunctions identifies and explores a seeming anomaly—the relatively mundane, often nineteenth-century-like feel of much of the subject matter that these injunctions target. The apparent modesty of the monetary stakes that many of these technologies implicate suggests limitations to any relationship between high stakes and protracted litigation. In any event, the apparent nature of these technologies and their associated stakes indicates that patent law might play an underappreciated role in supporting exclusionary activity by *Mittelstand*-like firms that focus on specific, sometimes idiosyncratic, and often non-high-tech market niches.

More generally, the prominence of "litigation in the middle" in the 2010 injunction data set raises significant policy concerns. First, in combination with the existence and nature of headline-garnering litigation, the existence and nature of "middling" litigation might indicate that our patent system has high-end and middling tiers that differ in terms of their characteristic technologies and stakes. These distinctions might mean that the operations of these tiers merit separate analysis and perhaps even different legal treatment. Second, the fact that a prominent technology area such as software is almost unrepresented in the 2010 injunction data set suggests that patent-infringement remedies might face serious limitations on their utility as levers for patent policy reform. If injunctions directed at software innovation are exceedingly rare, further modification of the law of injunctions might have relatively little effect on how patent law promotes or impedes developments in software.

More generally, the dominance of middling technologies in the 2010 injunction data set raises intriguing possibilities. Although the most culturally salient aspects of the patent system might be ones associated with the day's most high-stakes and high-technology innovations, the results from the 2010 data set suggest that much of the work of the patent system might lie elsewhere. As a nineteenth-century court suggested, a large part of the patent system's work might lie not in the stimulation of "great epoch-making discoveries" but instead in the fostering of "the indefinite

171. Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347 (1967), *reprinted in* FOUNDATIONS OF INTELLECTUAL PROPERTY 6, 9 (Robert P. Merges & Jane C. Ginsburg eds., 2006) ("I have argued that property rights arise when it becomes economic for those affected by externalities to internalize benefits and costs.").

multiplication of . . . small inventions and improvements."[172] Even as the patent system reaches beyond its industrial and preindustrial roots, much of its subject matter might remain relatively humble, directed not so much at awe-inspiring forward strides but instead at more innocuous advances and the quiet, comparatively diffuse cumulation of social betterment.

172. Crown Cork & Seal Co. v. Aluminum Stopper Co., 108 F. 845, 870 (4th Cir. 1901).

* * *

Trademarks as Search-Engine Keywords: Who, What, When?

David A. Hyman* & David J. Franklyn**

Most Internet searches result in unpaid (organic or algorithmic) results, and paid ads. The specific ads that are displayed are dictated by the user's search terms ("keywords"). In 2004, Google began offering trademarks for use as keywords on an unrestricted basis, followed in due course by other search engines. Once that happened, any entity (including sellers of competing products) could have their ads appear in response to a search for the trademarked product. Trademark owners responded by filing more than 100 lawsuits in the United States and Europe, making the dispute the hottest controversy in the history of trademark law. Litigation has focused on purchases by competitors—giving the impression that competitors account for a large portion of such purchases. We find that competitors account for a relatively small percentage of keyword purchases, and many trademark owners purchase their own marks as keywords. We also find a high degree of fluctuation in the number of paid ads and the domain names to which those ads are linked. We conclude that the risk of widespread abuse is low. Trademark owners' objections seem to have more to do with objections to free riding than with the zone of interests currently protected by U.S. trademark law.

I. Introduction

Most Internet searches result in unpaid (organic or algorithmic) results, along with paid ads. The specific ads that appear are dictated by the user's search terms ("keywords"). A search for "hotel in Miami" will return ads from individual hotels, travel websites (e.g., Orbitz and Expedia), and consolidators. A search for a product or service will return ads for that product, as well as complementary and competing products and services. The advertisers pay the search engine when their ad is clicked, even if no sale ever results.[1]

---

* H. Ross and Helen Workman Chair in Law, University of Illinois College of Law; Academic Affiliate, McCarthy Institute and Center for the Empirical Study of Trademark Law.

** Professor of Law; Executive Director, McCarthy Institute for Intellectual Property and Technology Law; and Director, Center for the Empirical Study of Trademark Law at the University of San Francisco School of Law. Financial support for this project was received from the McCarthy Institute, the University of San Francisco (USF), and the University of Illinois. This project could not have been completed without the hard work of a team of USF law students who handled the coding of individual web pages. We appreciate the extremely helpful comments we received from Professor Michael Frakes, and from attendees at the *Texas Law Review* Symposium at which this Article was presented. All remaining mistakes are our own.

1. *See Cost-Per-Click Bidding*, GOOGLE, http://support.google.com/adwords/bin/answer.py?hl=en&answer=2464960&topic=1713914&path=1713956-1713909&ctx=leftnav.

In 2004, Google began offering trademarks for use as keywords on an unrestricted basis, followed in due course by other search engines. Once that happened, any entity (including sellers of competing products) could have their ads appear in response to a search for the trademarked product. So, an Internet search for "Mercedes" predictably returns ads for Mercedes dealers and auto repair shops, but it may also return ads for Mercedes' competitors, such as BMW and Infiniti. Trademark owners responded by filing more than 100 lawsuits in the United States and Europe, making the dispute the hottest controversy in the history of trademark law.[2]

In a previous article, we studied consumers' goals and expectations when using trademarks as search terms, and assessed whether there was a likelihood of confusion (which is the touchstone for trademark infringement) resulting from those purchases.[3] In this Article, we report on the entities that are purchasing trademarks for use as keywords, and consider the economic significance of the reported patterns.

Past litigation over the use of trademarks as keywords has focused almost entirely on the purchase of trademarks for use as keywords by entities that were competitors of the trademark owner.[4] By definition, all of these "uses" of the trademark were without the permission of the trademark owner.[5] This fact pattern in the litigated cases has given the impression that competitors account for a large portion of trademark-keyword purchases and use. We find, however, that competitors account for a relatively small percentage of keyword purchases. We also find a high degree of fluctuation

---

2. A list of the filed cases we have been able to identify as of June 2012 is available from the authors on request.

3. David J. Franklyn & David A. Hyman, *Trademarks as Search Engine Keywords: Much Ado About Something?*, 26 HARV. J.L. & TECH. 481 (2013).

4. *See id.* at 497 ("[M]ost of the litigation involving trademarks as search engine keywords features competitors who are selling similar goods to those bearing the trademark . . . ."). Much of the litigation involved the trademark owner suing the entity that purchased the trademark for use as a keyword for trademark infringement. *See id.* at 497–98. But, some plaintiffs also sued Google, alleging direct infringement, contributory infringement, and in some instances, trademark dilution. *See, e.g.*, Rosetta Stone Ltd. v. Google Inc., 730 F. Supp. 2d 531, 550–52 (E.D. Va. 2010), *aff'd in part, vacated in part*, 676 F.3d 144, 167–73 (4th Cir. 2012) (vacating the lower court's granting of summary judgment against trademark dilution).

5. Pun intended. We are alluding to the fact that early cases involved a pitched battle over whether the use of trademarks as keywords constituted a "use" in commerce. Franklyn & Hyman, *supra* note 3, at 504 ("Much of this work focuses on the 'trademark use' controversy hotly debated at the outset of keyword litigation. As that issue has waned in significance, articles and notes have increasingly focused on whether the initial interest confusion doctrine fits the online world." (citation omitted)); *see also* Rescuecom Corp. v. Google Inc., 562 F.3d 123, 130–31 (2d Cir. 2009) (reversing dismissal of a claim that Google's use of Rescuecom's mark constituted an unauthorized use in commerce of that mark due to its likelihood of confusion to consumers). Rescuecom subsequently dropped the suit against Google—perhaps because it had purchased "Geek Squad" as a keyword, triggering a lawsuit against it by Best Buy. Tom Krazik, *Rescuecom Drops Trademark Suit Against Google*, CNET TECH CULTURE (Mar. 5, 2010, 10:44 AM), http://www.cnet.com/news/rescuecom-drops-trademark-suit-against-google/.

in the number of paid ads and the domain names to which those ads are linked. We conclude that the risk of widespread abuse is low.

We also find that many trademark owners purchase their own marks as keywords—presumably in an attempt to ensure that their ads appear as prominently as possible. Trademark owners are apparently unwilling to rely solely on Google's algorithmic search to ensure prominent placement on the search-results page. Trademark owners may also be purchasing their own trademarks for defensive reasons—to keep competitors from doing so entirely, or raising their competitors' costs if they persist.

Search engines obviously profit when trademarks are purchased as keywords, whether those purchases are by competitors or are defensive purchases by trademark owners. Given the low incidence of purchases of keywords by competitors and the likelihood that famous brand owners are likely to appear prominently in algorithmic-search results, our results raise questions about the cost-effectiveness of defensive keyword purchases by trademark owners.

Part II provides some background on search engines, keyword searches, and the litigation over the use of trademarks as keywords. Part III presents details on our methodology. Part IV presents our results. Part V discusses our findings. Part VI concludes.

II. Background on the Issues

A. Overview

Google began selling ads based on users' search term (i.e., keywords) in 2000.[6] In 2002, the system (known as AdWords) took its current form (i.e., payment-per-click).[7] In 2004, Google significantly loosened its policy on the purchase of trademarks as keywords.[8]

We describe the Adwords program in detail in an earlier article but provide a brief summary here.[9] Advertisers place bids, seeking to have their ads displayed when particular keywords are used as search terms.[10] Whether a particular ad is displayed depends on various search-specific and

---

6. Press Release, Google, Google Launches Self-Service Advertising Program (Oct. 23, 2000), *available at* http://www.google.com/press/pressrel/pressrelease39.html.

7. Press Release, Google, Google Introduces New Pricing for Popular Self-Service Online Advertising Program (Feb. 20, 2002), *available at* http://www.google.com/press/pressrel/select.html.

8. Greg Lastowka, *Google's Law*, 73 BROOK. L. REV. 1327, 1359–60 (2008). Prior to 2004, Google allowed trademarks to be used as keywords but would remove such ads if trademark owners complained. After 2004, Google no longer responded to complaints regarding the use of trademarks as keywords, meaning that their use was unrestricted. *See id.* at 1360.

9. Franklyn & Hyman, *supra* note 3, at 490–92.

10. JIM JANSEN, UNDERSTANDING SPONSORED SEARCH: CORE ELEMENTS OF KEYWORD ADVERTISING 177 (2011); Peter O'Connor, *Trademark Infringement in Pay-Per-Click Advertising*, *in* CONTEMPORARY RESEARCH IN E-BRANDING 148, 149 (Subir Bandyopadhyay ed., 2009).

bid-specific factors.[11] When users click on an ad, the advertiser pays Google the amount it bid, whether a sale results or not.[12]

AdWords is responsible for most of Google's advertising revenue, which in 2012 totaled more than $43 billion.[13] Bing and Yahoo use an analogous Payment-Per-Click model.[14] In 2004, 7% of Google's total revenue was "driven by" trademarked keywords.[15] In 2009, Google estimated that allowing the unrestricted use of trademarks in ad text would result in at least $100 million in increased annual revenues[16]—small potatoes in terms of Google's overall revenue in that year ($23.65 billion), but still a significant amount of money.[17]

B. Search Engine Policies Regarding Trademark Usage

We describe search engine policies regarding trademarks in detail in an earlier article,[18] so we simply summarize those matters here. The three major search engines (Google, Bing, and Yahoo) have comprehensive

---

11. *See, e.g.*, *Actual Cost-Per-Click (CPC)*, GOOGLE, http://support.google.com/adwords/answer/6297 (detailing how much a bidder will be charged per click, taking into account the Quality Score and the Ad Rank); *Ad Position*, GOOGLE, https://support.google.com/adwords/answer/6300?hl=en (indicating that ad position depends on a combination of a bidder's Quality Score and bid amount); *Check and Understand Quality Score*, GOOGLE, http://support.google.com/adwords/answer/2454010 (defining "Quality Score," which attempts to calculate the relevance of an ad, keyword, and landing page to a person viewing them, and includes past click-through rates and performance in targeted markets and devices in its calculation); *Using Keyword Matching Options*, GOOGLE, https://support.google.com/adwords/answer/2497836?hl=en&topic=16083&ctx=topic (explaining how to broaden or narrow keyword matches).

12. *Cost-Per-Click Bidding*, *supra* note 1. Google also has a program that allows bids based on conversion to actual sales, known as cost-per-acquisition bidding. *Cost-Per-Acquisition (CPA) Bidding*, GOOGLE, http://support.google.com/adwords/answer/2472713.

13. *2013 Financial Tables*, GOOGLE, http://investor.google.com/financial/tables.html. *See also* Franklyn & Hyman, *supra* note 3, at 483 ("These lofty market capitalizations are almost entirely attributable to the income generated by the advertising that accompanies search results."); Steven Levy, *Secret of Googlenomics: Data-Fueled Recipe Brews Profitability*, WIRED, June 2009, at 108, 113, *available at* http://www.wired.com/culture/culturereviews/magazine/17-06/nep_googlenomics (quoting then-Google CEO Eric Schmidt that after the implementation of a new version of AdWords, "'[a]ll of a sudden we realized we were in the auction business.'").

14. Franklyn & Hyman, *supra* note 3, at 492 (citing *Bing Ads*, BING, http://advertise.bingads.microsoft.com/en-us/bing-ads-how-it-works?tab=costs&s_cid=us_smb_a_product_costs).

15. Joint Appendix Vol. IX, Tab 41 - Ex. 6 - Google Three Ad Policy Changes at 4265, Rosetta Stone Ltd. v. Google, Inc., 676 F.3d 144 (4th Cir. 2012) (No. 10-2007), *available at* http://digitalcommons.law.scu.edu/appendix/33. This figure would likely have been higher if Google had not been honoring requests from trademark owners to disable the use of trademarks in keywords and ad text. *Id.* at 4263.

16. Franklyn & Hyman, *supra* note 3, at 492 (citing Joint Appendix Vol. IX, Tab 41 - Ex. 17 - E-mail from Baris Gultekin (Google Product Manager Director) at 4382–83, Rosetta Stone Ltd. v. Google, Inc., 676 F.3d 144 (4th Cir. 2012) (No. 10-2007), *available at* http://digitalcommons.law.scu.edu/appendix/55).

17. Press Release, Google, Google Announces Fourth Quarter and Fiscal Year 2009 Results (Jan. 21, 2010), https://investor.google.com/pdf/2009Q4_earnings_google.pdf.

18. Franklyn & Hyman, *supra* note 3, at 492–95.

policies regarding trademark usage and infringement. Bing and Yahoo's policies are identical because of a search-alliance agreement.[19] Google expanded its policy in 2009, allowing advertisers in more than 190 countries to purchase trademark keywords.[20] None of the three search engines actively police the use of trademarks *ex ante*; instead, all three use an approach analogous to the "notice and takedown" system in the Digital Millennium Copyright Act.[21] However, search engines will only respond to complaints by trademark owners when the offending use meets the requirements set by the search engines.[22]

As noted above, Google has allowed unrestricted purchase of trademarks for use as keywords since 2004.[23] Bing and Yahoo formally adopted a similar policy in 2011.[24]

C. *Academic Scholarship: Legal and Empirical*

The use of trademarks as keywords has attracted considerable attention from legal academics and the trademark bar.[25] Attention initially focused on the "trademark use" issue,[26] but articles have increasingly focused on

---

19. Franklyn & Hyman, *supra* note 3, at 492 (citing Dylan Benton, *What Every PPC Advertiser Needs to Know about the Yahoo! Bing Search Alliance*, TRIMARK (July 26, 2010), http://www.trimarksolutions.com/inside/yahoo-bing-merger/what-every-ppc-advertiser-needs-to-know-about-the-yahoo-bing-search-alliance and Pamela Parker, *Bing & Yahoo Align with Google's Trademark Rules for Search Ads*, SEARCH ENGINE LAND (Feb. 15, 2011, 5:15 PM), http://www.searchengineland.com/bing-yahoo-align-with-googles-trademark-rules-64902).

20. David Naffziger, *Google Modifies Global AdWords Trademark Policy*, BRANDVERITY (May 5, 2009), http://blog.brandverity.com/228/google-modifies-global-adwords-trademark-policy; Barry Schwartz, *Google AdWords Opens up Trademarked Bidding to Most Countries*, SEARCH ENGINE LAND (May 5, 2009, 4:34 PM), http://searchengineland.com/google-adwords-opens-up-trademarked-bidding-to-most-countries-18628.

21. *See* 17 U.S.C. § 512(c)(1)(A)(iii) (2012) (prohibiting liability for service providers for copyright infringement from holding copyrighted information on a system or network if the service provider expeditiously removes or restricts access to the material upon learning of the infringement).

22. *E.g.*, *AdWords Trademark Policy*, GOOGLE, http://support.google.com/adwordspolicy/bin/answer.py?hl=en&answer=6118 ("If a trademark owner files a complaint with Google about the use of their trademark in AdWords ads, Google will investigate and may enforce certain restrictions on the use of that trademark in AdWords text ads."); Hortensia Lopez-Nakano, *Tips from the adCenter Editorial Team: Intellectual Property Policy for the Trademark Owner*, BING ADS (Dec. 1, 2011), http://advertise.bingads.microsoft.com/en-us/blogpost/105655/bing-ads-blog.

23. *See supra* note 8 and accompanying text; *see also* Rosetta Stone Ltd. v. Google, Inc., 676 F.3d 144, 151 (4th Cir. 2012).

24. *See* Eric Goldman, *Microsoft Adopts Google-Style Trademark Policy for Keyword Advertising*, TECH. & MARKETING L. BLOG (Feb. 15, 2011), http://blog.ericgoldman.org/archives/2011/02/microsoft_adopt.htm.

25. A list of more than fifty articles on the subject is available from the authors on request. Our earlier work references a number of these articles as well. Franklyn & Hyman, *supra* note 3, at 504–06.

26. The debate was over whether the defendant-advertisers and search engines were using plaintiff's mark *as a trademark*. *E.g.*, Stacey L. Dogan & Mark A. Lemley, *Trademarks and Consumer Search Costs on the Internet*, 41 HOUS. L. REV. 777, 779–84 (2004). That controversy

whether the "initial interest confusion" doctrine should be applied to the online world.[27]

We have found very little empirical work on the use of trademarks as keywords. O'Connor studied ninety trademarks for hotels throughout the world, and found that "abuse is rampant," with a majority of searches including ads for third-party websites.[28] However, Rosso and Jansen analyzed the same issue using 100 prominent trademarks and found that only 2.7%–6.4% were competitors' "piggybacking" ads.[29] Rosso and Jansen concluded that "competitive piggybacking does not appear to be a . . . widespread phenomenon."[30]

Finally, Blake, Nosko, and Tadelis recently conducted a controlled study of the impact of ad purchases on eBay sales.[31] They found "new and infrequent users are positively influenced by ads but that more frequent users, whose purchasing behavior is not influenced by ads account for most

---

has largely subsided, with virtually all courts holding that the sale of trademarks as keywords may be actionable, as long as infringement in the form of confusion or dilution is shown. *See, e.g.*, Rescuecom Corp. v. Google Inc., 562 F.3d 123, 130–31 (2d Cir. 2009).

27. *See, e.g.*, Daniel C. Glazer & Dev R. Dhamija, *Revisiting Initial Interest Confusion on the Internet*, 95 TRADEMARK REP. 952, 953 (2005) (asserting that the expansion of initial interest confusion on the Internet is unnecessary); Eric Goldman, *Deregulating Relevancy in Internet Trademark Law*, 54 EMORY L.J. 507, 565 (2005) [hereinafter Goldman, *Deregulating Relevancy*] (arguing that initial interest confusion doctrine is "predicated on multiple mistaken and empirically unsupported assumptions about searcher behavior"); David M. Klein & Daniel C. Glazer, *Reconsidering Initial Interest Confusion on the Internet*, 93 TRADEMARK REP. 1035, 1035 (2003) (contending that the initial interest confusion doctrine is unnecessary in the context of the Internet); Jennifer E. Rothman, *Initial Interest Confusion: Standing at the Crossroads of Trademark Law*, 27 CARDOZO L. REV. 105, 169 (2005) (noting that many judges lack familiarity with Internet technology and therefore courts are unable to assess a reasonable consumer's experience on the Internet); *cf.* Eric Goldman, *Brand Spillovers*, 22 HARV. J.L. & TECH. 381, 397 (2009) (arguing that redirection of consumers to competing brands is widely accepted by courts in an offline-retail context).

28. Peter O'Connor, *Pay-per-Click Search Engine Advertising: Are Hotel Trademarks Being Abused?*, 50 CORNELL HOSPITALITY Q. 232, 240 (2009) (finding that ads appeared in the vast majority of searches and that third parties accounted for the majority of the ads).

29. Mark A. Rosso & Bernard J. Jansen, *Brand Names as Keywords in Sponsored Search Advertising*, 27 COMM. ASS'N FOR INFO. SYS. 81, 88 (2010). The most common forms of piggybacking are resellers' promotion of the brand or other functions that assist in selling the product, such as coupons or free samples. Such promotional piggybacking accounted for 55%–78% of ads, depending on the search engine. *Id.* Orthogonal piggybacking, the results of which usually included informational websites about the brand or the underlying company, accounted for 16%–42% of ads, depending on the search engine. *Id.* Rosso and Jansen note that the use of trademarked terms by competitors is extremely low. *See id.* at 89 ("[The] six competitive piggybacking ad occurrences are the result of just two ads . . . .").

30. *Id.* at 81.

31. Thomas Blake et al., Consumer Heterogeneity and Paid Search Effectiveness: A Large Scale Field Experiment (Apr. 8, 2014) (unpublished manuscript), *available at* http://faculty.haas.berkeley.edu/stadelis/Tadelis.pdf ("[W]e show that returns from paid search are a fraction of conventional non-experimental estimates. As an extreme case, we show that brand-keyword ads have no measurable short-term benefits.").

of the advertising expenses, resulting in average returns that are negative."[32] If these results are generalizable, they call into question the cost-effectiveness of defensive purchases of trademarks as keywords by trademark owners.[33]

III. Methods

We obtained a list of well-known trademarks from the International Trademark Association (INTA).[34] According to an INTA representative, the list was compiled based on the frequency of inquiries to the INTA Trademark Hotline regarding active U.S. registered trademarks.[35] After excluding duplicate trademarks used in different lines of business (e.g., Agree is used for shampoo and conditioner, but also for agricultural insecticide), we were left with a total of 2,474 unique trademarks.[36]

We hired a programmer to develop a computer program that would run an Internet search for each trademark in the full INTA list, using each of the three specified search engines. For each trademark–search engine combination, the program captured a count of the number of unpaid and paid links, the URLs associated with each of those links, and a PDF of the primary search results. The program also captured a PDF of the web page at each of the first ten unpaid and paid links. The program excluded social-networking sites, news, maps, and pictures from its definition of paid and unpaid links. For mysterious reasons the program repeatedly crashed on a dozen specific trademarks, leaving us with 2,462 trademarks (hereinafter, the "full INTA list"). During fall 2010, using multiple Apple computers in Champaign and Chicago, we ran all 2,462 trademarks twice, with a two-month gap between the first and second run.

---

32. *Id.*

33. The results may not be generalizable because of factors unique to eBay's market position. eBay is likely to rank highly in algorithmic search, independent of purchased ads; the same may not be true for other entities. *Id.* at 20–22. Alternatively, the results may not be generalizable because eBay's advertising strategy is poorly targeted. *See* Larry Kim, *Dear eBay, Your Ads Don't Work Because They Suck*, WORDSTREAM BLOG (Mar. 13, 2013), http://www.wordstream.com/blog/ws/2013/03/13/dear-ebay-its-not-adwords-its-you (criticizing eBay's use of Dynamic Keyword Insertion, a process that dynamically inserts the user's query into an ad's headline; "For the last 10 years or so, they've been running ads on the most ridiculous things including stuff that doesn't exist . . . .").

34. *Trademark Checklist*, INT'L TRADEMARK ASS'N, http://applications.inta.org/apps/trademark_checklist/.

35. E-mail from Randi J. Mustello, Dir. of Publ'g, INTA, to author (July 13, 2010, 11:33 CDT) (on file with authors).

36. INTA flags "duplicate" trademarks by adding the number "1" after the trademark name. So, the INTA database includes both "Agree" for agricultural insecticide, and "Agree1" for shampoo and conditioner. Coding was based on the better known use of the trademark (as determined by both authors), regardless of whether INTA had coded the better known use as the primary or secondary trademark. So, we coded Agree as shampoo and conditioner, rather than agricultural insecticide, even though INTA had classified the agricultural-insecticide use as the primary trademark.

We developed a standardized coding protocol for classifying unpaid and paid links and applied that protocol to code the first five paid and unpaid links in each trademark–search engine combination. McCarthy Institute research fellows from the University of San Francisco were responsible for coding the search output from the first run of the full INTA list. The coding protocol was refined over time to reflect feedback from the research fellows and to capture the full range of search output. We had multiple meetings with the research fellows to validate the coding categories and to ensure that there was consistency in coding across research fellows. Coding was conducted throughout fall 2010 and was completed by January 2011. In the end, the coding protocol had the following eleven specific categories for classifying the entity behind the link:

- Trademark owner;
- Vendor selling trademarked goods only;
- Vendor selling the trademarked goods as well as competing goods;
- Vendor selling competing goods only;
- Vendor of complementary goods and services;
- Employment website;
- Collateral information/sales opportunity vendor;[37]
- Collateral information provider;
- Coupon website;
- Generic usage;
- Other.

Because it was extremely time-consuming to collect and code PDFs for all of the linked webpages, only the first run was analyzed in this fashion. However, we did conduct a second run of the full INTA data set in February 2011 and analyzed the results at a higher level of generality.

Using selected trademarks from the full INTA list, we also assessed the degree of volatility in our results using two different strategies. First, we randomly selected 600 trademarks from the full INTA list and ran them through the same program 34 times during three two-week periods during October, November, and December 2011.[38]

Then, during winter 2012, we asked six people (one of whom was one of the authors) to identify the top 10% of the trademarks in the full INTA list, judged by which trademarks were the most popular/prominent/

37. A collateral information/sales opportunity vendor would be a web site like price grabber.com or eBay.

38. A list of these trademarks is available from the authors on request.

recognizable.[39] After aggregating votes, we identified the 182 most popular trademarks (hereinafter, the "Big Brands"), and ran them through the same program 22 times during a two-week period during February–March 2012.

IV. Results

A. Overview

We begin with some simple descriptive statistics. Table 1 analyzes the number of mean and median paid links and the percentage of trademarks with no paid links, broken down by search engine, for the first run of our full data set (totaling approximately 2,500 trademarks).

Table 1: Paid Links Statistics - Full INTA List

Paid links	Search Engine		
	Bing	Google	Yahoo
Mean	2.2	2.7	7.1
Median	1	2	8
No paid links	48%	29%	15%

Mean and median number of paid links, and percent of trademarks with no paid links, broken out by search engine for full INTA list, first run (2,462 trademarks).

As Table 1 reflects, we find substantial differences across search engines. For example, Bing and Google have similar mean paid links (2.2 and 2.7, respectively), while Yahoo has almost three times as many mean paid links (7.1). We find the same pattern with median paid links (1 for Bing, 2 for Google, and 8 for Yahoo). However, Bing had a substantially higher number of trademarks with no paid links (48%)—almost twice as many as Google (29%), and three times as many as Yahoo (15%). We now turn to the question of what types of entities are purchasing these paid links.

39. A list of these trademarks is available from the authors on request.

B. Who's Buying Paid Links?

As noted previously, most of the litigation involving the use of trademarks as keywords has involved the purchase of trademarks by competitors.[40] But is that actually representative of the universe of transactions? Table 2 shows what type of entities are purchasing trademarks as keywords for the first five paid and unpaid links.[41] The third column in Table 2 shows the difference in the percentages for paid and unpaid links. We present the results for unpaid search results as a control, indicating the frequency of various types of links absent the profit motive provided by keyword sales.

Table 2: Frequency of Link Type—First Five Paid and Unpaid Links

Type of Link	% of Links		
	Paid	Unpaid	(Paid–Unpaid)
Vendor of TM products and competing products	26.6%	3.3%	23.3%
Collateral information and sales opportunity vendor	24.3%	2.6%	21.7%
TM owner	13.2%	42.3%	–29.1%
Vendor of TM products only	6.0%	3.3%	2.7%
Vendor of competing products only	6.2%	2.9%	3.2%
Generic use	6.0%	6.0%	0.0%
Other	5.8%	2.4%	3.4%
Vendor of collateral or complementary goods and services	4.9%	1.3%	3.7%
Collateral information provider	3.0%	35.4%	–32.3%
Employment website	2.1%	0.2%	1.9%
Coupon website	1.8%	0.2%	1.6%

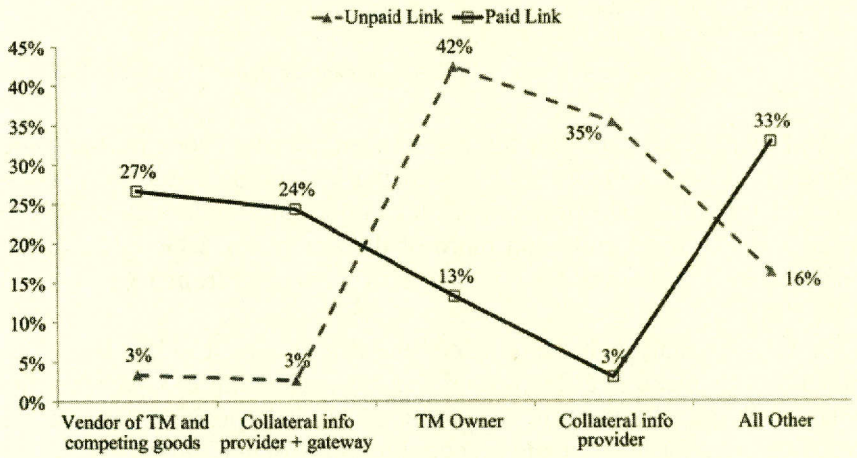
Coding results for 2,462 trademarks, totaling 18,733 paid links (3,982 for Google, 5,396 for Bing, and 9,355 for Yahoo) and 36,945 unpaid links from the first run of full INTA list.

40. *See supra* note 4 and accompanying text.

41. Table 2 and all subsequent tables use the number of returned paid links as the denominator for computing percentages—so search results with zero paid links drop out of the analysis.

As Table 2 makes clear, there are substantial differences in link type when we compare paid and unpaid links. However, competitor-only links accounted for only 6.2% of paid links and 2.9% of unpaid links—comparable to, or less than the figures accounted for by generic use of the trademark (6.0% for both paid and unpaid links). In absolute terms, the largest differences are observed in four categories: vendor of trademarked product and competing products; collateral information provider/sales opportunity vendor; trademark owner; and collateral information provider. To make direct comparison of the results for these four categories easier, Figure 1 plots the results for paid and unpaid links for each category and a combined "all other" category, rounded to the nearest percent.

Figure 1: Source of Links for Full INTA

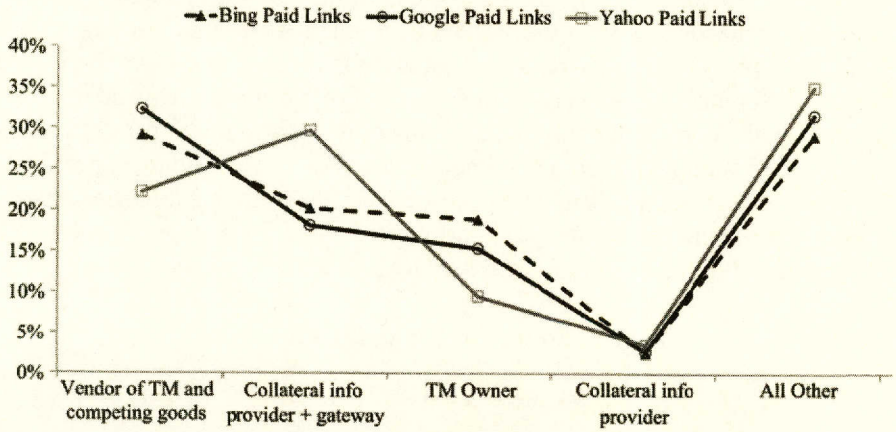


Source of paid and unpaid links for first run of full INTA data set.

Do these patterns vary by search engine? We found little evidence of variation (at least, as judged by coding category) in the unpaid links returned by each of the three search engines. Each search engine had a peak for trademark owners of 39%–45%, and a peak for collateral information providers of 32%–35%. Similarly, competitors were consistently 3% of unpaid links, regardless of the search engine.

We find somewhat more variation (again judging by coding category) in the paid links returned by each of the three search engines. Figure 2 provides detail on the source of paid ads using the same categories as in Figure 1, but this time broken down by search engine.

Figure 2: Source of Paid Links for Full INTA Search by Search Engine

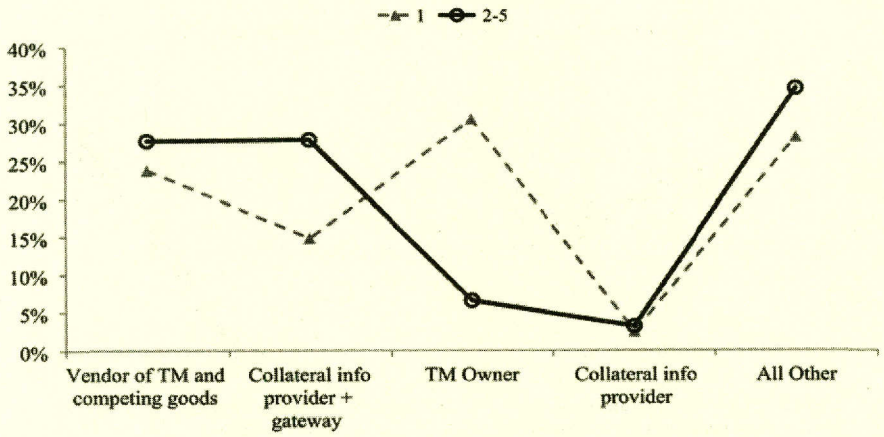


Percent of paid links in full INTA trademark run (fall 2011).

As Figure 2 indicates, all three search engines had roughly the same combined total for vendors of the trademarked product and competing goods and for collateral information/sales opportunity vendors, but Yahoo had far fewer of the former and more of the latter, while Google had the opposite pattern. The peak for trademark owner ranged from 10% (Yahoo) to 19% (Bing).

So far, our analysis has aggregated the first five paid links. But, does search position make a difference in our results? Figure 3 presents the results when we disaggregate our findings by link position, comparing coded categories for the first and second through fifth paid links.

Figure 3: Source of Paid Links by Link Position



Percentage source of paid links for first run of full INTA data set, broken out by link position (first and second through fifth).

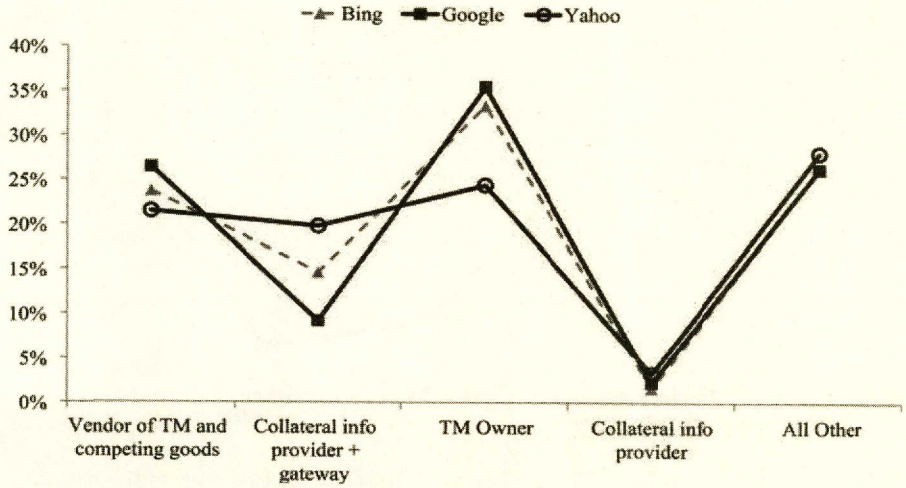
Figure 3 makes it clear that link position matters in understanding the patterns of who is purchasing trademarks as keywords. Trademark owners are responsible for only 13% of all paid links, but if we limit the analysis to the first paid-link position, trademark owners account for almost one-third (31%) of paid links. As link position increases, trademark owners steadily disappear from the mix: accounting for 11% of the second paid-link position, 6% of the third paid-link position, 5% of the fourth paid-link position, and 4% of the fifth paid-link position.

We find the opposite pattern when we focus on collateral information provider/purchasing gateway, which is more likely to occupy the second paid-link position (and far more likely to occupy the third through fifth paid-link position) than the first paid-link position. We find similar, but less dramatic results for vendors of trademarked and competing goods, which are more likely to occupy the second through fifth paid-link position, as compared to the first paid-link position.

To summarize, when trademark owners purchase paid links, they gravitate toward the top spot. Since trademark owners do not seem to want to appear in lower ranked paid-link positions, these spots are snapped up by other entities—with a disproportionate share purchased by websites offering information and a link to a website where one can purchase the branded good, or the branded good and other competing goods.

Figure 4 breaks out the results in Figure 3 by search engine for the first paid-link position.

Figure 4: Source of First Paid Link by Search Engine



Source of first paid link for first run of full INTA data set.

As Figure 4 demonstrates, the 31% overall trademark-owner share of the first paid link position[42] results from averaging divergent results for Yahoo (25%), Bing (33%), and Google (36%). We find similar divergence for collateral information provider/purchasing gateway; the 15% overall share of the first paid link position[43] results from averaging divergent results for Yahoo (20%), Bing (15%), and Google (9%).

C. Volatility

Our findings to this point are based on a snapshot of search results. But, are these findings stable over time? We now turn to that issue.

As a first cut at determining that issue, we replicated the initial search during February 2011—this time on a smaller number of computers in Champaign, Illinois. As before, for each trademark–search engine combination, the program captured a count of the number of unpaid and paid links and a PDF of the primary search results. However, we did not grab PDFs of unpaid and paid websites, because we did not plan to recode the results. Instead, our goal was to determine whether the number of paid links remained reasonably stable, and, to the extent possible, whether we could match up the coding results from our earlier analysis.

As Table 3 reflects, we found substantial differences in the number of paid links between our first and second searches.

---

42. *See supra* Figure 3.
43. *See supra* Figure 3.

Table 3: Comparison of First and Second Run

Paid Links	Run	Search Engine		
		Bing	Google	Yahoo
Mean	1st	2.2	2.7	7.1
	2nd	0.6	1.1	1
Median	1st	1	2	8
	2nd	0	0	0
None	1st	48%	29%	15%
	2nd	72%	53%	71%

Mean and median number of paid links, and percent of trademarks with no paid links, broken out by search engine for full INTA list, first and second runs (2,462 trademarks).

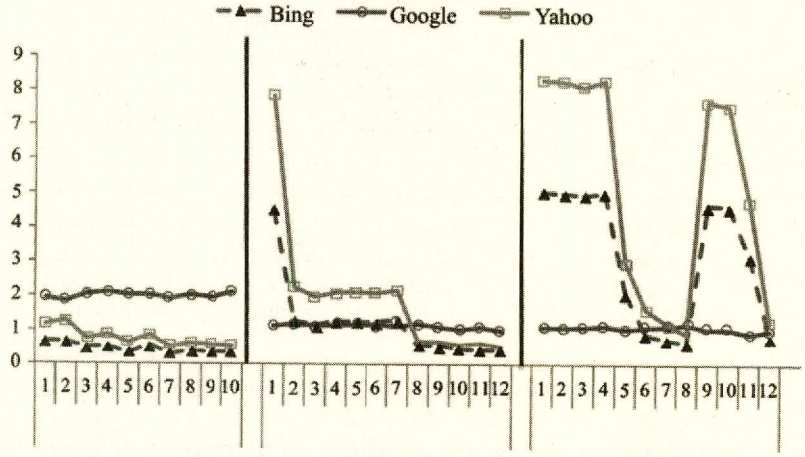
The second run had lower mean and median paid links across all three search engines than the first run. During the second run, Google and Yahoo had roughly the same number of mean paid links (1.1 and 1, respectively), while Bing had roughly half as many (0.6). All three search engines had the same median number of paid links (0) during the second run. Bing and Yahoo have a very high percentage of trademarks with no paid links—at a level well above that observed in the first run for any search engine (72% and 71%, respectively). The disjunction between the results from the first and second runs suggests that paid search results may be quite volatile. But, are we capturing a one-time blip, a long-term trend, or simple volatility?

To analyze that issue, we selected a random sample of 600 trademarks, drawn from the trademarks used in the earlier searches.[44] During fall 2011, we ran these 600 trademarks through all three search engines a total of 34 times during three two-week periods in October (10 runs), November (12 runs), and December 2011 (12 runs).[45] To minimize the influence of external factors, all searches were run on the same Apple computer in Champaign, Illinois. Figure 5 shows the mean paid links for each search engine for each of the 34 runs of the 600 trademark data set.

44. A list of the 600 trademarks is obtainable from the authors on request.

45. The October runs were conducted from October 13, 2011 until October 27, 2011. The November runs were conducted from November 10, 2011 until November 23, 2011. The December runs were conducted from December 13, 2011 until December 28, 2011.

Figure 5: Mean Paid Links Per Trademark (600 TM Runs)

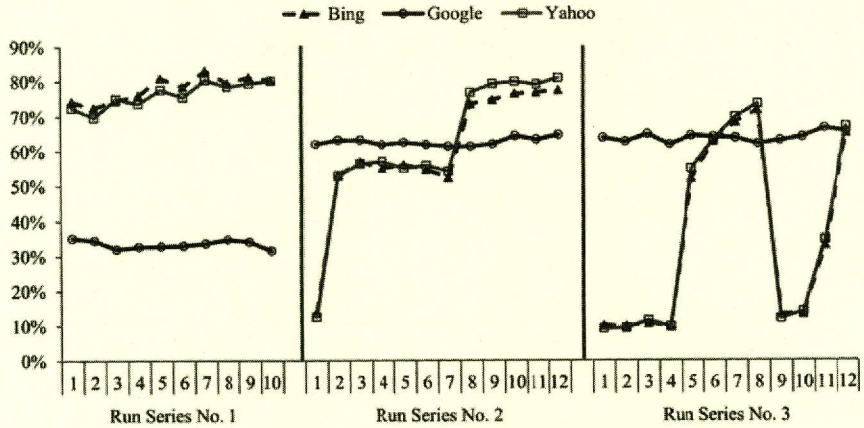


Mean paid links in sequential runs of 600 trademarks during October, November, and December 2011.

As Figure 5 indicates, the frequency of paid links varies substantially over time. During the first two-week period (October 2011), the number of paid links was stable, with Google averaging two paid links per trademark, and Bing and Yahoo averaging less than one paid link per trademark. During the second two-week period (November 2011), the initial run had a far higher number of paid links for Yahoo and Bing (7.8 and 4.5 paid links per trademark, respectively), but both trended downward dramatically thereafter and ended at roughly the same level that prevailed during the first two-week period. Google had a different pattern, with lower paid links throughout the second two-week period than during the first two-week period. During the third two-week period (December 2011), Google remained at the level that had prevailed during the second two-week period, while Yahoo and Bing spiked and remained elevated for four runs until dropping back to the level that had prevailed during the first two-week period.

What about the percentage of trademarks that had zero paid links? How did that vary by search engine and over time? Figure 6 analyzes that issue.

Figure 6: Trademarks with No Paid Links (600 TM Sequential Runs)

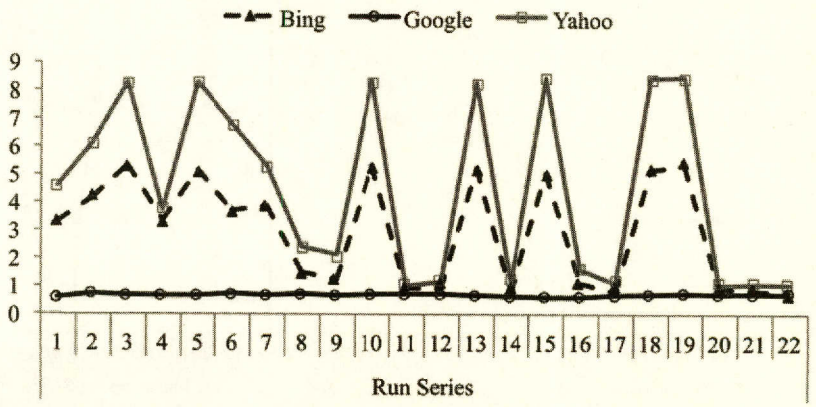


Percentage of 600 trademarks that had no paid links during any given run.

As Figure 6 demonstrates, we find relatively little volatility in the number of trademarks with zero paid links in the first two-week period, but we find substantially more volatility in the second and third two-week periods for Bing and Yahoo. Google averaged around 35% of trademarks with zero paid links in the first run versus roughly 65% in the second and third runs. We also find that the share of zero paid links in Bing and Yahoo closely track one another.

Finally, we repeatedly ran our sample of 182 Big Brands over a two-week period in February and March 2012. Figure 7 shows the mean number of paid links, broken out by search engine.

Figure 7: Mean Paid Links (Big Brands Sequential Run Runs)

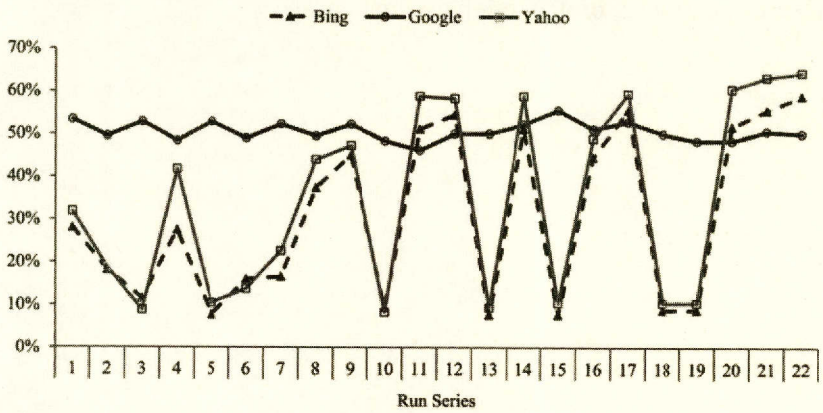


Mean paid links for 182 Big Brands in 22 sequential runs from February 21, 2012–March 5, 2012.

Figure 7 shows that Bing and Yahoo have a high degree of volatility in the mean number of paid links compared to Google. Yahoo consistently has the most paid links, and Google consistently has the least. The pattern for Bing generally tracks that of Yahoo, although the peaks are lower.

Figure 8 analyzes the percentage of the Big Brands for which there were zero paid links in each of these sequential runs, again broken out by search engine.

Figure 8: Percentage of Zero Paid Links (Big Brands Sequential Runs)



Percentage of 182 Big Brands with zero paid links in 22 sequential runs from February 21, 2012–March 5, 2012.

As Figure 8 demonstrates, roughly half of the Big Brand trademarks had no paid links whatsoever when run through Google, with volatile but generally lower percentages for Bing and Yahoo.

D. Meta Comparisons

We also compared the domain names associated with the first five paid and unpaid links for each of the three data sets we employed (full INTA list, 600 trademark list, and Big Brands list). Table 4 presents the results of that analysis.

Table 4: Domain Source of Paid and Unpaid Links

	Full INTA		600 TM		Big Brands	
	Paid	Un-paid	Paid	Un-paid	Paid	Un-paid
.com	94.5%	80.4%	96.5%	81.9%	95.4%	86.0%
.org	1.2%	11.9%	1.2%	11.9%	1.1%	10.6%
.net	3.3%	2.3%	1.4%	1.8%	2.8%	0.6%
.edu	0.1%	1.1%	0.2%	0.8%	0.0%	0.6%
Other	0.9%	4.3%	0.8%	3.5%	0.6%	2.2%

Percent of domains by paid and unpaid links and by runs. Any domain with <1% across all run-link combinations was treated as "other."

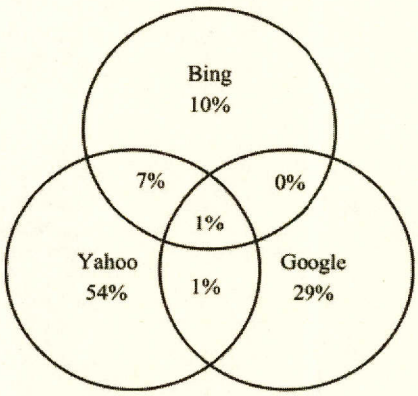
As Table 4 indicates, the ".com" domain accounts for approximately 96% of paid links for all three data sets, but a somewhat more modest share (80.4%–86%) of unpaid links. Conversely, the ".org" domain accounts for only 1% of paid links and 10.6%–11.9% of unpaid links. We find only modest differences when we compare different data sets, compared to the differences between paid and unpaid links. When we examined the breakdown of link types within each domain, we found that job-search websites were heavily skewed toward the ".net" domain, but otherwise found no consistent patterns.

We next analyzed the issue of "advertiser overlap." Are search engines selling keywords to the same entities, or does each search engine present unique paid content? Using the domain name for each paid ad, we calculated the extent to which each search engine had unique versus common advertisers for each trademark. To do so, we computed the degree of overlap for each trademark, and then averaged those results across all trademarks within each data set.[46] Figure 9 shows the results of that analysis.

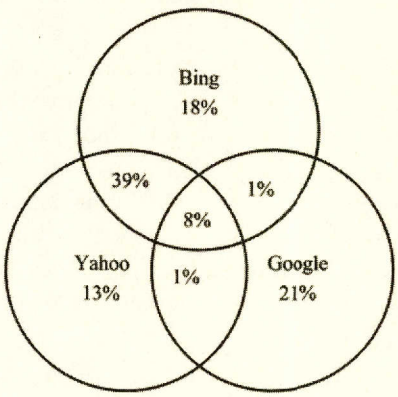
46. For example, assume that for a given trademark, the Bing search resulted in two ads (by A and B); the Google search resulted in two ads (C and D); and the Yahoo search resulted in four ads (A, C, E, and F). Bing and Google would each have one-sixth unique ads, and Yahoo would

Figure 9: Sponsor Overlap Between Search Engine

Full INTA List

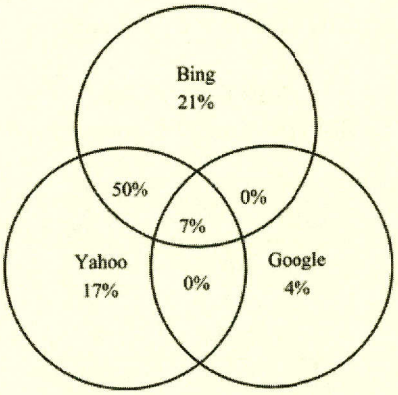


600 TM Runs



have one-third unique ads. Bing and Yahoo would have common ads of one-sixth, as would Google and Yahoo. There would be no ads common to all three search engines, nor to Bing and Google. This process would be repeated for all trademarks in the data set, and then the trademark-specific results would be averaged to arrive at the percentages reported in Figure 9.

Big Brands



Sponsor overlap between search engines using domain name to calculate overlap. Overlap is computed for each trademark, and then averaged across all trademarks within each data set. For multiple runs (600 Trademark and Big Brands), we compute per-trademark results, and then average across all trademarks in the data set.

As Figure 9 indicates, we find a high percentage of unique advertisers (as measured by the domain name of the advertiser) in the largest data set, but as the data set shrinks (particularly when we focus on Big Brands), the degree of shared advertisers rises dramatically, particularly for Bing and Yahoo.

E. Drilling Down on the Risk of Diversion/Infringement

Next, we examined these risks of diversion at a trademark-specific level. Even if competitor-only links account for only 6.2% of paid links, they might account for a much higher percentage of the paid links for a specific group of trademarks. The owners of trademarks that attract mostly competitor-only ads might have a very different view of the merits than trademark owners who are not on the receiving end of such ads. The presence of competitor-only links in organic search results complicates matters further; if Bing, Google, and Yahoo "think" that a competitor-only link is a good response to a particular search query when they are not being paid to reach that determination, it is far from clear that we should condemn the sale and purchase of trademarks as keywords, even when direct competitors are involved.[47]

---

47. As noted above, we are implicitly treating organic search results as the "control" for the paid ads. Thus, to the extent organic search results include competitor-only links, we would expect to find them in paid ads. It is only their incremental presence in paid ads compared to organic search results that is noteworthy. For a very different take on this issue, see Lisa Larrimore Oullette, *The Google Shortcut to Trademark Law*, 102 CALIF. L. REV. 351, 354–55 (2014) (proposing that courts should use the presence of alleged infringer-competitors in organic search results as a measure of the likelihood of confusion).

Table 5 provides a first cut at this issue, with a simple four-cell box, indicating how many trademarks have or don't have any competitor-only links, broken out for organic search and paid ads.

Table 5: Distribution of Competitor-Only Links

		Links for Competitor Only (Paid Ads)		
		No	Yes	All
Links for Competitor Only (Organic Search)	No	1819 (73.7%)	378 (15.3%)	2197 (89%)
	Yes	139 (5.6%)	131 (5.3%)	270 (10.9%)
	All	1958 79.4%	509 20.6%	2467 100%

As Table 5 indicates, almost 74% of trademarks have no competitor-only links—and an additional 5.6% of trademarks have competitor-only links in organic search results but not in paid ads. Thus, only 20.6% of trademarks have competitor-only links in paid ads only, or in both paid ads and organic search results.

Table 6 continues the analysis, focusing on the number of trademarks that have a specific number of competitor-only links in paid-ad and organic search results.

Table 6: Distribution of Competitor-Only Links by Trademark

	Paid Ads		Organic Search	
Number of Competitor Only Links	Number of TMs	Percent of TMs	Number of TMs	Percent of TMs
0	1958	79.4%	2197	89.1%
1	255	10.3%	81	3.3%
2	114	4.6%	51	2.1%
3	57	2.3%	33	1.3%
4	30	1.2%	22	0.9%
5+	59	2.2%	83	3.4%
All	2495	100%	2495	100%

Since we coded up to fifteen paid ads, a naïve interpretation of Table 6 would be that competitor-only links rarely account for a majority of paid ads. But, not all trademarks obtained fifteen paid ads (although all but one had fifteen organic search results). Accordingly, in Table 7 we compute the "market share" of competitor-only links relative to paid-ad and organic search results.

Table 7: Distribution of Competitor-Only Links by Trademark

	Paid Ads		Organic Search	
Number of Competitor Only Links	Number of TMs	Percent of TMs	Number of TMs	Percent of TMs
0%	1731	70.2%	2196	89.0%
0–10%	132	5.4%	81	3.3%
10–20%	164	6.6%	84	3.4%
20–30%	52	2.1%	22	0.9%
30–40%	64	2.6%	34	1.4%
40–50%	26	1.1%	9	0.4%
50%+	69	2.8%	40	1.6%
No links	229	9.2%	1	0.0%
All	2467	100%	2467	100.0%

As Table 7 reflects, for only 69 trademarks (2.8% of all trademarks) do we find competitor-only links account for 50% or more of paid ads. Most of these trademarks attract relatively few paid ads; of the 69 trademarks, the mean number of paid ads for all three search engines combined is 6.8. If we limit the analysis to trademarks where competitor-only links accounted for 100% of paid ads, the mean number of paid ads for all three search engines combined is 2.5. And, some of these 69 trademarks have competitor-only links in organic search results, which should be subtracted from the reported percentages to arrive at the "true" market share of competitor-only links in paid ads. Finally, because a competitor can engage in nominative fair use, the fact that a link is competitor-only does not necessarily establish trademark infringement. Thus, 2.8% represents a ceiling, rather than a point estimate of the frequency of trademark infringement.

F. Who Is the Big Dog?

If competitor-only links do not dominate the paid-ad space, who does? Which entities are most likely to purchase a specific trademark as a keyword? To evaluate that issue, we focused on the 38 trademarks that were included in both the second and third data sets. These trademarks were run a total of 56 times through each search engine. For each trademark–search engine combination, we identified the domain names that appeared most frequently. Table 8 provides the results of this analysis for fourteen trademarks, which are illustrative of the observed patterns.[48]

48. We selected these fourteen trademarks because they reflected the various patterns of domain names we observed in the full data set of thirty-eight trademarks that were run fifty-six times. Results for the remaining trademarks are obtainable from the authors on request.

Table 8: Top Paid Link Across All Searches

Name of TM	Search Engine	Most Frequent Paid Ad (Domain Name)	No. of Ads
Adidas	Bing	shopadidas.com	78
	Google	shopadidas.com	26
	Yahoo	jcpenney.com	35
American Airlines	Bing	aa.com	50
	Google	None	0
	Yahoo	aa.com	51
Apple	Bing	store.apple.com	72
	Google	store.apple.com	56
	Yahoo	store.apple.com	91
Baskin-Robbins	Bing	go-get-coupons.com	17
	Google	baskinrobbins.com	22
	Yahoo	go-get-coupons.com	37
Budweiser	Bing	budshop.com	38
	Google	facebook.com	12
	Yahoo	budshop.com	85
Clinique	Bing	clinique.com	90
	Google	nordstrom.com	10
	Yahoo	lancome-usa.com	72
Frito-Lay	Bing	fritolay.jobsradar.com	25
	Google	bright.com	9
	Yahoo	indeed.com	33
Froot Loops	Bing	music-oasis.com	14
	Google	download-fruity-loops.com	7
	Yahoo	music-oasis.com	40
Gatorade	Bing	gatorade.com	91
	Google	expresstools.com gatorade.com	22
	Yahoo	gatorade.com	56
Harley-Davidson	Bing	amazon.com	16
	Google	harley-davidson.com	17
	Yahoo	calibex.com	36
Michelob	Bing	everything-neon.com	8
	Google	michelobultra.com	54
	Yahoo	everything-neon.com	21
Nabisco	Bing	couponsponge.com	18
	Google	kraftrecipes.com keebler.com	1
	Yahoo	couponsponge.com	32
Revlon	Bing	revlon.com	38
	Google	drugstore.com	24
	Yahoo	revlon.buymebeauty.com	44
Toyota	Bing	toyota.com	62
	Google	toyota.dealersclearinglots.com	36
	Yahoo	toyota.reply.com	55

Table 8 demonstrates that trademark owners routinely purchase their own trademarks for use as keywords—and in some instances are the sole purchasing entity (e.g., American Airlines and Apple).[49] We also find a mix of other purchaser types, including entities selling the branded product or complementary products, coupon sites, price-aggregation sites, and occasional oddities. Direct competitors are conspicuous by their absence.[50]

G. Regression Analysis

We conducted extensive regression analysis of our results, using both ordinary least squares (OLS) and Poisson regression. The results were unimpressive.[51] As expected, Google had fewer paid links than Bing and Yahoo, and Yahoo had more paid links than Bing. We found no evidence that trademarks with more unpaid links (which we assumed correlated with greater visibility and consumer demand) had more paid ads. The absolute number of paid ads was higher when the trademark owner purchased at least one paid ad.

V. Discussion

Our findings provide useful context for the ongoing dispute over the use of trademarks as keywords, as well as for some larger issues.

A. Trademarks as Keywords: Much Ado About Something?

Litigation over the use of trademarks as keywords has been the hottest issue in trademark law during the past few years,[52] but the litigated cases give a deeply misleading picture of the issue. Very few trademarks are being purchased as keywords by direct competitors of the branded product.[53] Instead, the most frequent purchasers are those selling the

---

49. Google does not include any paid ads for American Airlines, presumably reflecting the settlement of the 2004 lawsuit between American Airlines and Google. *But see* Eric Goldman, *American Airlines and Google Settle Keyword Advertising Lawsuit*, TECH. & MARKETING L. BLOG (July 19, 2008), http://blog.ericgoldman.org/archives/2008/07/american_airlin_1.htm ("Based on this data, my initial hypothesis is that Google did not make any special concessions to American Airlines to block keyword ads on their trademarks.").

50. *Cf.* ARTHUR CONAN DOYLE, *Silver Blaze*, *in* MEMOIRS OF SHERLOCK HOLMES 1, 22 (Book-of-the-Month Club Inc. 1994). While investigating a murder, Sherlock Holmes observed:

> 'Is there any point to which you would wish to draw my attention?'
> 'To the curious incident of the dog in the night-time.'
> 'The dog did nothing in the night-time.'
> 'That was the curious incident,' remarked Sherlock Holmes.

Id.

51. Regression results are available from the authors on request.

52. *See supra* notes 4–5 and accompanying text.

53. Our findings are consistent with an earlier and much smaller study of high-profile trademarks. Rosso & Jansen, *supra* note 29, at 93. Of course, it is possible that competitors are not buying trademarks as keywords because of the legal risks associated with doing so. We do not know for certain what the purchasing patterns would look like if there were no legal risks

trademarked good, or selling complementary goods and services. Trademark owners are more than twice as likely as competitors to purchase any given trademark as a keyword. Competitor-only links usually do not account for a material share of paid ads. And competitor-only links also turn up in organic search results.

These patterns mean that the overall risk of diversion and/or confusion is actually quite low. And a blanket ban on the sale of trademarks as keywords would either close down or dramatically curtail a market channel that can provide real benefits to consumers. Finally, the risk of consumer harm seems rather remote. We believe that trademark owners have challenged these practices for reasons that have little to do with the interests trademark law is intended to protect. As we noted in an earlier article:

> Trademark owners have a Lockean rights-based claim to profit from (and, to a reasonable extent, control) the property they have created, including the right to profit from the collateral value of their marks when used as Internet search terms. At the same time, Google has created and popularized the platform that makes the same trademarks valuable as search terms, and therefore has its own competing Lockean rights-based claim to profit from the sale of any and all search terms on that platform. Finally, consumers have diverse preferences and goals. Markets, together with the institutions that enable them, are typically best justified as means by which such preferences can be maximized. Some consumers that use a trademark as a search term prefer to be able to choose from a diverse range of goods and services. The ads that accompany search results benefit them by supporting Google's free search services, and allowing them the opportunity to buy products that they were not necessarily thinking about, but were at least open to. Other consumers are only interested in products bearing the specific trademark they entered as a search term. They too benefit from the free search services that Google provides, and they can only be diverted if they click on the "wrong" paid ad.
>
> Given the complex nature of these competing claims — pitting rights against rights, and rights against social utility — we should stop pretending that these disputes present a straightforward legal

---

associated with purchasing a competitor's trademarks. But, by 2012, when we did the Big Brands analysis, the drumbeat of litigation had slowed as it became increasingly apparent that it was difficult to win a keyword case. *See* Eric Goldman, *Another Google AdWords Advertiser Defeats Trademark Infringement Lawsuit*, FORBES (Nov. 8, 2012, 12:37 PM), http://www.forbes.com/sites/ericgoldman/2012/11/08/another-google-adwords-advertiser-defeats-trademark-infringement-lawsuit ("Over the last dozen years, there have been countless trademark lawsuits over competitive keyword advertising . . . . However, only a few of those cases–about a dozen, by my count–have reached a final outcome in a United States court . . . . Of those, trademark owners rarely win . . . ."). Table 8 indicates that even with these reduced legal risks, the most frequent purchasers of the Big Brands were, without exception, not direct competitors. *See supra* Table 8.

> issue that only requires the parsing of a trademark statute or the application of a multi-factor likelihood of confusion test. Indeed, analyzing these issues within the boundaries set by existing trademark doctrine, whether consumer confusion or dilution, obscures the real choice that judges and legislators will have to make.[54]

Those with a historical bent may note that the entire episode bears an uncomfortable similarity to the efforts by the movie studios to ban Sony's video-cassette recorders, rather than adapt their business model to technological change.[55]

That said, we do find that a small number of trademarks receive a heavily disproportionate share of competitor-only paid ads, even after we take account of the presence of competitor-only links in organic search results. Further research will be necessary to determine whether actionable confusion results for this small number of trademarks. Regardless of the number of affected trademarks, our findings should not be taken as a license for competitors to engage in true trademark infringement, whether online or offline.

B. Search Engine Business Model(s)

Search engines participate in a multi-sided market. Users receive free search and provide information about their needs and interests.[56] Advertisers receive access to those users (and information about them), and provide paid ads.[57] Search engines obtain revenue by selling ads.[58]

The results from the second and third data runs suggest that the three search engines we studied have adopted distinct business strategies. Google consistently has the fewest paid ads and the lowest percentage of trademarks with zero paid ads. Yahoo has the most ads and the highest percentage of trademarks with zero paid ads. Bing is somewhere in between—which is interesting, given that Bing took over Yahoo's back-office search operations in 2009, more than a year before our first run.[59] It

---

54. Franklyn & Hyman, *supra* note 3, at 540–41.

55. Derek Khanna, *A Look Back at How the Content Industry Almost Killed Blockbuster and Netflix (and the VCR)*, TECHCRUNCH (Dec. 27, 2013), http://techcrunch.com/2013/12/27/how-the-content-industry-almost-killed-blockbuster-and-netflix/. In his testimony before Congress in 1982, Jack Valenti, the head of the Motion Picture Association of America, gave a sense of the content industry's take on the issues: "'I say to you that the VCR is to the American film producer and the American public as the Boston strangler is to the woman home alone.'" *Id.*

56. Rufus Pollock, *Is Google the Next Microsoft? Competition, Welfare and Regulation in Internet Search* 2 (Cambridge Working Papers in Econ., Paper No. 0921, 2009), *available at* http://rufuspollock.org/papers/search_engines.pdf.

57. *Id.*

58. *Id.*

59. Peter Burrows, *Yahoo Gives In to Microsoft, Gives Up on Search*, BLOOMBERG BUSINESSWEEK (July 29, 2009), http://www.businessweek.com/technology/content/jul2009/tc20090728_826397.htm.

is also interesting that we find so many trademarks with zero ads, when selling ads is the primary revenue source for search engines.[60] And, ad listings in Bing and Yahoo are much more volatile than in Google, for reasons that are not obvious. It remains to be seen which of these three models is profit-maximizing in the long run, and the answer may well depend on the mix of users and advertisers served by each search engine. Our findings emphasize the dynamism of the search market, which complicates any firm conclusions about the optimal business model—even were that business model not subject to disruptive innovation by new entrants and existing competitors.

C. *Why Do Trademark Owners Purchase Their Own Trademarks as Keywords?*

Many trademark owners purchase their own trademarks as keywords. In some instances, trademark owners entirely (e.g., American Airlines and Apple) or largely (Gatorade) saturate the ad space. And, trademark owners have a clear preference for the first paid-ad space, accounting for fully 31% of first paid ads.

What is the logic of such purchases? Presumably, trademark owners wish to ensure their sites are prominently featured, and they are not willing to rely on algorithmic search to do so. They also may be motivated by a defensive desire to keep competitors from buying their marks as keywords—or raising their competitors' costs if they insist on doing so. Google and other search engines profit from such purchases.

Are such purchases cost-effective? The answer likely turns on a number of factors, including the visibility of the trademarked product in algorithmic search, the cost and effectiveness of the ads in question, and the identity and goals of the alternative purchasers of those ads. As we discuss above, one controlled study found that eBay's ad purchases were not cost-effective—but it is not clear how generalizable those findings actually are.[61] And search engines have no incentive to de-bias trademark owners that fear the consequences if they fail to purchase such ads.

The question is not a new one. A well-known 19th and 20th century retailer (John Wannamaker) famously observed that "half the money I spend on advertising is wasted, but I can never find out which half."[62] The question is ultimately an empirical one—but it is certainly plausible that

60. One possible explanation: each search engine might cut special deals with specific trademark owners, ensuring that no paid ads will appear. American Airlines may have agreed to settle its lawsuit against Google on this basis. *See supra* note 49. Regardless, it is unclear how common such agreements actually are, and we are doubtful that this fully explains the observed patterns.

61. *See supra* notes 31–33 and accompanying text.

62. Blake et al., *supra* note 31, at 1.

such purchases may not be a cost-effective marketing strategy for the most prominent brands/trademark owners, given the likelihood they would be prominently featured in the algorithmic search results anyway and given the low frequency of keyword purchases by actual competitors. However, our data does not provide sufficient information with which to answer this question.

D. The Perils of Casual Empiricism

In our earlier article on the use of trademarks as keywords, we highlighted the perils of casual empiricism.[63] Our findings in this Article provide further evidence on the perils of casual empiricism. Intellectual property law should rest on a sounder footing. Casual empiricism may be an occupational hazard for lawyers, judges, and law professors, but enough already.

VI. Conclusion

Perceptions about the use of trademarks as keywords have been framed by litigation, with trademark owners suing direct competitors and search engines that sell the trademarks for use as keywords to direct competitors. That factual setting does occur but it is distinctly unrepresentative of the universe of transactions in which keywords are purchased. In the real world, the most frequent purchasers of keywords are those selling the trademarked goods and complementary goods and services, or trademark owners.

Why does it matter who is purchasing trademarks as keywords? Public policy has been framed in the shadow of the disputes over the use of trademarks as keywords. Casual empiricism led judges to make a number of important assumptions about the underlying issues—but they were doing so in the context of highly unrepresentative exemplars. And it is almost always a mistake to develop public policy based on such unrepresentative exemplars.[64]

---

63. Franklyn & Hyman, *supra* note 3, at 499–504.

64. *See, e.g.*, David A. Hyman, *Lies, Damned Lies, and Narrative*, 73 IND. L.J. 797, 848 (1998) ("Significant adverse consequences can follow when laws are based on false-hoods, half-truths, and truths that are not generalizable . . . ."); David A. Hyman, *Rescue Without Law: An Empirical Perspective on the Duty to Rescue*, 84 TEXAS L. REV. 653, 660 (2006) ("From a public policy perspective, context (i.e., how the mine-run of situations where rescue is necessary are handled) matters a great deal more than the facts—however bad they may be—of any given non-rescue matter in assessing the overall merits of the no-duty rule.").

Law is replete with examples of unintended consequences flowing from judicial decisions, regulation, and legislation that are based on similar casual empiricism. Even if we ignore the complex substantive issues that arise from attempting to apply trademark law to the purchase of keywords, history counsels caution in the development of public policy in this space. If we fail to heed this warning, the future of intellectual property law on the Internet will be déjà vu all over again.

* * *

The Idiosyncrasy of Patent Examiners: Effects of Experience and Attrition

Ronald J. Mann*

I. Introduction

In recent years, problems with the U.S. patent system have garnered attention from scholars and policymakers of all types. Concerns about the competitiveness of U.S. industry undergird worries that the Great Recession will linger as long as the 1990s downturn in Japan.[1] It is no coincidence that a Congress that has remained at loggerheads on most aspects of economic policy could reach a consensus on the enactment of the Leahy-Smith America Invents Act of 2011,[2] by far the most important statutory reform of U.S. patent law since 1995. Yet, despite Congress's long-overdue attention to patent law, it is unlikely that the statute will resolve the troubling quality issues that have dogged the system for years. Prominent critics of the patent system argue that a decades-long decline in the quality of patents undermines the effectiveness of the system.[3] Some go so far as to insist that poor-quality patents cause a drag on the competitiveness of the national economy.[4] Those concerns are prominently displayed in the Supreme Court's spring 2012 decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*,[5] which emphasized the Court's view that

---

* Albert E. Cinelli Enterprise Professor of Law and Co-Director, The Charles Evans Gerber Transactional Studies Center, Columbia Law School.

1. *See* James Solloway, *Comparing Recessions: U.S. "Great Recession" vs. Japanese "Lost Decade,"* SEI 1 (Sept. 2010), http://www.seic.com/docs/Canada-IMU/SEI_Comparing-Recessions-Japanese-Lost_Decade_10-5-10_CA.pdf (addressing concerns that the U.S. economy is facing a "lost decade" similar to that experienced by Japan 1991–2001).

2. Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

3. *See generally* A PATENT SYSTEM FOR THE 21ST CENTURY (Stephen A. Merrill et al. eds., 2004) (combining perspectives on patent law and innovation and suggesting methods for reinventing the patent system); JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK (2008) (synthesizing empirical evidence regarding recent patent history and finding that patents are an inefficient property); ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2004) (conducting an economic analysis of the past two decades of patent law and concluding that the U.S. patent system is profoundly broken).

4. *See* BESSEN & MEURER, *supra* note 3, at 1–5 (giving an overview of economic harms that result from the defective patent system); DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT 95–100 (2009) (detailing the disadvantages and negative effects of industry-specific patent statutes).

5. 132 S. Ct. 1289 (2012).

the Federal Circuit has gone so far in liberalizing patent policy as to inhibit the pace of innovation.[6]

As concerns about systemic failure have come to the fore, attention in recent years increasingly has focused on the role of examiners in this process. If examiners differ from each other in how they approach applications, then they introduce arbitrariness into the process. In that vein, remarking on notable levels of examiner idiosyncrasy, Iain Cockburn, Samuel Kortum, and Scott Stern notably quip that "there may be as many patent offices as patent examiners."[7] In a recent paper in the *Review of Economics and Statistics*, Mark Lemley and Bhaven Sampat follow Cockburn, Kortum, and Stern, arguing that applications examined by those with more experience are more likely to be granted than applications examined by those with less experience.[8]

At the same time, during the tenure of David Kappos as Director of the Patent and Trademark Office (PTO), the PTO has taken vigorous steps to limit attrition among the examination corps, hoping to improve the quality of examiner work by increasing the tenure of examiners.[9] Among a variety of quality-of-life initiatives designed to enhance the attractiveness of the position,[10] the PTO has, for the first time, initiated plans to open satellite offices around the country, hoping to improve the attractiveness of long-term PTO employment.[11] Plans to open an office in Detroit are well advanced[12] and Denver seems not far behind.[13] An overwhelming focus of the initiatives has been to decrease the increasingly large backlogs that have plagued the office for years; increasing the pace of examination thus has become a major goal of the PTO administration.[14]

---

6. *See id.* at 1301–02, 1305 (finding that several patent claims raise concerns regarding "inhibit[ing] further discovery" and reversing the Federal Circuit).

7. Iain M. Cockburn, Samuel Kortum & Scott Stern, *Are All Patent Examiners Equal? Examiners, Patent Characteristics, and Litigation Outcomes*, *in* PATENTS IN THE KNOWLEDGE-BASED ECONOMY 19, 21 (Wesley M. Cohen & Stephen A. Merrill eds., 2003) (internal quotation marks omitted).

8. Mark A. Lemley & Bhaven Sampat, *Examiner Characteristics and Patent Office Outcomes*, 94 REV. ECON. & STAT., 817, 817, 821–22 (2012).

9. *USPTO FY 2013 Budget Request: Hearing Before the Subcomm. on Commerce, Justice, Sci., & Related Agencies of the H. Comm. on Appropriations*, 112th Cong. 2–3 (2012) (statement of David J. Kappos, Under Secretary of Commerce for Intellectual Property & Director of the United States Patent and Trademark Office).

10. Request for Comments on Additional USPTO Satellite Offices for the Nationwide Workforce Program, 76 Fed. Reg. 73,601, 73,601 (Nov. 29, 2011).

11. *Id.*

12. *See USPTO FY 2013 Budget Request*, *supra* note 9, at 3 (stating that the Detroit office is "on track" to open in the summer of 2012).

13. *USPTO Satellite Offices (In Progress)*, U.S. PAT. & TRADEMARK OFF., http://www.uspto.gov/about/locations/satellites.jsp (last modified May 30, 2013).

14. *See* Request for Comments on Additional USPTO Satellite Offices for the Nationwide Workforce Program, 76 Fed. Reg. at 73,601 (mentioning the USPTO's efforts to "reduce patent application pendency").

This Article offers a deeper look at examiner idiosyncrasy. The combination of a hand-collected data set of examiner patent portfolios with the National Bureau of Economic Research (NBER) patent data set and internal PTO data about examiner education facilitates a richer analysis of examiner variation and its causes than anything in the existing literature. Part II describes the existing literature, the background of this project, and the model of the examination process on which the Article builds. Part III summarizes the data collection. Part IV presents the results, and Part V briefly concludes. The Article reaches three important conclusions:

- The existing literature overemphasizes the importance of experience, largely because it fails to consider the importance of attrition and tenure differences among examiners that relate to their total career in the office. The Article documents a substantial relation between the tenure of an examiner and the attributes of the patents approved by the examiner. Thus, from the first months of work, the output of examiners who will stay in the office the longest differs markedly from the output of examiners whose stay in the office will be the shortest. This finding holds for a wide variety of objective metrics commonly used in the existing literature.
- The effects of tenure are substantial and cut in the opposite direction from experience. For example, where the number of claims in a patent or the time spent in examination increases markedly with the experience of the examiner, both attributes decrease markedly with increasing tenure. The relative size and opposing directions of those effects are robust across a variety of specifications and patent attributes. A smaller (but cognizable) "lame-duck" effect, cutting in the same direction as the effects of experience, is apparent in the last year before the end of the examiner's employment.
- Education affects the work of examiners in important ways. Certain educational attainments correlate with substantially increased tenure (especially professional degrees, such as a J.D.), while others correlate with substantially reduced tenure (especially a Ph.D.). Those attainments also relate to the output of the examiner as well; although the effects are neither as consistent nor as large as the effects of experience and tenure, they are statistically significant for all of the metrics available in the data analyzed here.

II. Background

A. Literature Review

The existing research documents substantial heterogeneity among patent examiners. The seminal work is by Cockburn, Kortum, and Stern, which analyzes 196 examiners who had worked on 182 patents involved in Federal Circuit litigation between 1997 and 2000.[15] Collectively, those examiners had worked on about 300,000 patents between 1976 and 2000 (at the time the data were collected).[16] Analyzing all patents for which an individual served either as primary or secondary examiner, Cockburn, Kortum, and Stern find marked heterogeneity on all of the characteristics they examine, including the technological breadth of their examination portfolios, the citations received per patent examined, and the citations that appear in the patents examined.[17] Although Cockburn, Kortum, and Stern have evidence about the total number of patents examined, they make scant use of it; primarily, they note the substantial variation in the total number of patents examined.[18]

Douglas Lichtman similarly documents variation in the effect that examiners have on textual changes in patent claims during the examination process. Lichtman collected the first 300,000 patent applications published after 2000 (when the PTO first began to publish patent applications)[19] and quantified the extent of textual changes between the application and the issued patent.[20] From those 300,000 applications, he examines the patents that were issued in the "ten classes for which [he] had the most observations to study examiners one technology at a time."[21] Lichtman's object of study is application–patent pairs, and he "restrict[s] the study to include only those examiners for whom he had ten or more observations."[22] He concludes that differences among the responsible examiners account for about two-thirds of the variation in rigor of editing.[23]

Cockburn, Kortum, and Stern and Lichtman are primarily interested in documenting the existence of variation, reasoning that variation is self-

15. Cockburn et al., *supra* note 7, at 35.

16. *Id.* at 36.

17. *Id.* at 39–44.

18. *See id.* at 39, 40 fig.1 (noting that the wide variation in the number of patents reviewed among examiners "is consistent with the substantial variation we see in the examiners' length of tenure").

19. Press Release, U.S. Patent & Trademark Office, USPTO Will Begin Publishing Patent Applications (Nov. 27, 2000), *available at* http://www.uspto.gov/news/pr/2000/00-72.jsp.

20. Douglas Lichtman, *Rethinking Prosecution History Estoppel*, 71 U. CHI. L. REV. 151, 157 (2004).

21. *Id.* at 160, 161 tbl.1.

22. *Id.* at 162.

23. *Id.* at 168.

evidently arbitrary if its effects are substantive.[24] As a result, they are less interested in identifying the sources of variation. Lemley and Sampat are the first to provide serious attention to the sources of variation and their impact on patent-application outcomes.[25] They use about 10,000 patent applications (the universe of new utility patent applications filed in January 2001 and published before April 2006).[26] For that sample, they relate information about the final disposition of the application (whether it was granted and whether it was granted with no rejections) to information about the examiners.[27] Their analysis takes account of the most junior examiner on each patent: the secondary examiner if there was one and, otherwise, the responsible primary examiner.[28] Having obtained the PTO Employee Directories from 1992 onwards, they are able to determine how long each examiner had been employed at the PTO as of the date of the application.[29] Ultimately, they conclude that the experience of the examiner relates importantly to the treatment of the application in three ways.[30] The most experienced examiners add fewer citations to the patent (two citations per patent) than the least experienced examiners.[31] Similarly, the grant rate increases monotonically with experience, so that the most experienced examiners have a grant rate eleven percentage points higher than the least

24. *See* Cockburn et al., *supra* note 7, at 21 (summarizing that "substantial—and quantifiable—heterogeneity" among patent examiners may affect the patent examination process); *see* Lichtman, *supra* note 20, at 155 (discussing how examiner disparities render the entire patent system "more random" because those disparities link a patent's scope to the personal characteristics of the examiner).

25. *See* Lemley & Sampat, *supra* note 8, at 817 (explaining the differences between their study, which analyzes "the impact of examiner characteristics on patent application outcomes," and previous studies, which examined the effect of patent-examiner heterogeneity on issued patents).

26. *Id.* at 819.

27. *Id.*

28. *See id.* (describing how the authors assigned examiners to each patent based on which examiner undertook "the most direct work").

29. *Id.* Two recent papers explore other possible sources of variation. Frakes and Wasserman match longitudinal data about PTO fee structures to examiner grant rates to support the idea that shifts in the urgency of agency underfunding alter PTO vigilance in substantial ways. Michael D. Frakes & Melissa F. Wasserman, *Does Agency Funding Affect Decisionmaking?: An Empirical Assessment of the PTO's Granting Patterns*, 66 VAND. L. REV. 67, 70, 92 (2013). Tu argues that the count system separates examiners into two populations that behave distinctly by showing excessive deference or excessive hostility to applications. Sean Tu, *Luck/Unluck of the Draw: An Empirical Study of Examiner Allowance Rates*, 2012 STAN. TECH. L. REV., art. 10, ¶¶ 5–6 (2012), http://stlr.stanford.edu/pdf/tu-luckunluckofthedraw.pdf. Although both papers contribute to an understanding of examiner motivations and practices, neither uses the kind of examiner-level data analyzed here and in Lemley and Sampat. Lemley & Sampat, *supra* note 8, at 819–20; *see infra* text accompanying notes 52–74.

30. Lemley & Sampat, *supra* note 8, at 822.

31. *Id.* at 821.

experienced examiners.[32] Although the emphasis of Lemley and Sampat is on documenting the importance of experience as a source of variation,[33] in their view, both data points suggest a negative return to experience.[34] They note, among other things, that citations added reflect "how deeply [the examiner] searches,"[35] and add that their findings about the grant rate "suggest[] that examiners are doing more work, and rejecting applications with more rigor, at early stages in their career[s], and both doing less work and allowing more patents as their [experience] increases."[36]

B. Background and Hypotheses

The most important reason to understand examiner variation is that examiner effort likely relates directly to the quality of the patents on which the examiner works.[37] For example, Ronald Mann and Marian Underweiser present a model of the patent production process in which the quality of the issued patent is a function of the joint efforts of the applicant and the examiner.[38] Focusing solely on quality as a function of expected validity in the event of Federal Circuit adjudication, that paper emphasizes a number of institutional features of the existing system that limit the incentives of applicants and examiners to give their best effort to individual applications.[39] Those results, then, have implications for the structure of the examination process.

By focusing on differentiation among examiners, this Article extends that work in a human-resources direction. Instead of focusing on the incentives of the applicant and examiner, this Article examines the ways in which the qualities of the examiners themselves influence the output of the process. Robert Merges argued more than two decades ago that making the job of an examiner more attractive as an employment opportunity would

---

32. *Id.* Lemley and Sampat also found that the most experienced examiners are significantly more likely to grant without rejections than the least experienced examiners. *Id.* at 822.

33. *Id.* at 817.

34. *See id.* at 826 (arguing those findings raise an inference that more experienced examiners do less work, rather than "getting it right more often," than less experienced examiners).

35. *Id.* at 820–21.

36. *Id.* at 822. To be sure, as discussed in Mann and Underweiser, it is possible that a decline in rejections could actually reflect an increase in effort; for example, if the count system makes it easier for examiners to reject patents out of hand instead of working with the applicants to revise the claims so as to limit them to patentable subject matter, we might see a decline in the rate of rejection with increased examiner effort. Ronald J. Mann & Marian Underweiser, *A New Look at Patent Quality: Relating Patent Prosecution to Validity*, 9 J. EMPIRICAL LEGAL STUD. 1, 24–25 (2012).

37. *See* Lemley & Sampat, *supra* note 8, at 819 n.4 (noting the difficulties of evaluating complex patent claims for less experienced examiners).

38. Mann & Underweiser, *supra* note 36, at 2.

39. *Id.* at 24–29.

improve examiner output,[40] but he did not undertake to document the benefits of a change in the quality of examiner candidates or of improved retention of those that enter the office.

Because of the emphasis on human-resources attributes, this Article necessarily also confronts a different type of "quality" of examiner output: the efficiency of the examiner's work from a labor and employment perspective. Thus, examiner attributes or institutional factors that cause examiners to work more (or less) efficiently in the office are important even if they have no effect on the likely validity of the patents that flow from the examiners' work. This suggests, at least conceptually, the possibility of a balance among factors that improve examiner efficiency in the workplace and those that improve the likely validity of each examiner's output.

For reasons that will be clear when I discuss the constraints on the available data below,[41] I distinguish two ways in which differences among examiners relate to the quality of the examiner's work: those that are fixed (time-invariant) and those that vary with the examiner's time in the office. Lacking any data about individual examiners other than their time in the office, Lemley and Sampat emphasize the way in which experience alters the quality of an examiner's work as the examiner's career progresses.[42] This is not a novel idea. Various scholars have documented a positive return to experience in a variety of employment settings.[43] If an examiner's relationship with the PTO has a life cycle, we can imagine that examiners change in many ways as the years of their work at the PTO elapse. On the one hand, they learn more and more about the examination process, about the prior art that is relevant to the technologies on which they work, and about the behavior of applicants and others in the PTO as it affects their work. Collectively, those suggest a positive return to experience—a "learning by doing" effect.

On the other hand, as an examiner's experience increases, the examiner might for any number of reasons become less effective—a

---

40. Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 606–07 (1999).

41. *See infra* Part III.

42. Lemley & Sampat, *supra* note 8, at 826.

43. The return is most commonly attributed to "learning by doing" or the like. *See, e.g.*, David S. Abrams & Albert H. Yoon, *The Luck of the Draw: Using Random Case Assignment to Investigate Attorney Ability*, 74 U. CHI. L. REV. 1145, 1150 (2007) (examining the impact of experience on the performance of public defenders); Hassan Ali & D. Roy Davies, *The Effects of Age, Sex and Tenure on the Job Performance of Rubber Tappers*, 76 J. OCCUPATIONAL & ORGANIZATIONAL PSYCHOL. 381, 383, 387–88 (2003) (examining rubber tappers in Malaysian forests); Christian Dustmann & Costas Meghir, *Wages, Experience and Seniority*, 72 REV. ECON. STUD. 77, 77–79, 92–94 (2003) (studying young workers entering the German labor market between 1975 and 1995); Paul R. Sparrow & D. R. Davies, *Effects of Age, Tenure, Training, and Job Complexity on Technical Performance*, 3 PSYCHOL. & AGING 307, 307–08, 312–13 (1988) (examining engineers at a multinational office-equipment business).

"burnout" effect. Workload might get heavier. The steady acquisition of tacit knowledge might lead to an increasingly rule-bound (and thus less vigilant) approach to tasks. From this perspective, as the examiner becomes more senior, the examiner might do a less thorough job. This suggests a contrary hypothesis—supported by Lemley and Sampat, as discussed above[44]—that the quality of work declines with experience, which would appear in the data either as a negative return to experience or as a decline in the return to experience.[45]

The preceding discussion assumes that examiners are relatively homogeneous at the time they come to the PTO and that the length of time they stay in the office is a largely fortuitous happenstance of events after they begin work at the PTO. Yet, research in other employment contexts suggests that it is likely that much of the variation in tenure relates to individual characteristics of the examiner that are, for all practical purposes, time-invariant, fixed at or shortly after the commencement of the examiner's employment. For example, Gary Henry, Kevin Fortner, and Kevin Bastian find that teachers who will remain in teaching more than five years are substantially more effective than those that will exit teaching within five years; at the same time, they find that the initially positive returns to experience peak quickly and thereafter diminish, and identify a substantial drop in effectiveness during the last year of employment.[46]

Conceptually, the idea for present purposes is that individuals differ in their suitability for the job of patent examiner. This might be true for a variety of overlapping reasons, ranging from personality attributes (such as the ability to work to quotas, or the ability to work without detailed supervision) to life-choice attributes (the desire for a long-term career with relatively little risk) to past experience (either in education or prior employment).

Moreover, those attributes could affect the quality of work in distinct ways. Most obviously, they could directly affect the examiner's intellectual preparation to make the judgments necessary for high-quality patent examination. But they also could have more complex, indirect effects. They could, for example, alter the likely period of time for which the examiner would remain in the office. Thus, some individuals might come to the PTO expecting to work as an examiner for a short period of time, hoping to gain experience that would help in some more lucrative opportunity elsewhere (at a law firm or technology company, for example).

---

44. *See supra* notes 25–36 and accompanying text.

45. *See* Lemley & Sampat, *supra* note 8, at 826 (finding evidence that more experienced examiners were doing less work than junior examiners).

46. Gary T. Henry, C. Kevin Fortner & Kevin C. Bastian, *The Effects of Experience and Attrition for Novice High-School Science and Mathematics Teachers*, 335 SCIENCE 1118, 1118–20 (2012).

Others might come to the PTO hoping, or planning, to make a career out of the relative stability that comes with government employment. The prior experience and education of the examiner are likely to be relevant to those effects, as are the opportunities in the labor markets external to the PTO. But whatever the reasons, it would not be surprising if these kinds of relatively stable examiner characteristics related directly to the quality of the work done by the examiners while in the office. In the abstract, it is difficult to predict which effect would dominate. Better qualifications might lead to superior capability and thus a longer stay in the office—a "careerist" outcome. Conversely, it well might be that better qualifications would lead to superior external opportunities, and thus less attachment to the PTO work. Those disparate effects well might mean that objectively better credentials could relate either to superiority or inferiority as an examiner. Lemley and Sampat discuss, for example, the possibility that term of employment might relate inversely to quality of output because of the superior external labor opportunities of more qualified examiners.[47]

The indirect effects related to the duration of the examiner's attachment to the office warrant particular attention, in part because of the difficulty of separating them from the time-variant effects of experience. One way to think about those latter effects is that they relate to the examiner's "tenure" (a fixed attribute of the examiner—the total length of the examiner's career) as distinct from the examiner's "experience" (an attribute that shifts over time—the period the examiner already has spent in the office at any given point). In other employment contexts, scholars have identified separate effects of those two attributes.[48] Again, however, as with experience, the effect of tenure could cut in both directions. On the one hand, it might be that "short-timers"—those who will turn out to have a short tenure—are relatively disinterested in the work because they know that they will be there only briefly, while careerists—those who will turn out to have a long tenure—will work harder from the first day, knowing that they have a greater period over which to reap the rewards of investment in the job. Or the causation could run in the opposite direction (notwithstanding the difficulties of firing government employees)[49]: those who do better work remain in their jobs longer than those who do worse work. In either event, this would appear in the data as a positive return to increasing tenure. On the other hand, if those who have realistic, superior

47. Lemley & Sampat, *supra* note 8, at 824.

48. Comparing the effects of experience and tenure for teachers, Henry, Fortner, and Bastian separately identify positive effects for both experience and tenure. Henry et al., *supra* note 46, at 1119–20. In their data, the returns to increasing experience diminished rapidly. *Id.* They also find a substantial negative effect for short-term teachers in their last year of employment. *Id.* at 1120.

49. Angie Drobnic Holan, *Firing Federal Workers is Difficult*, POLITIFACT (Sept. 5, 2007, 5:52 PM), http://www.politifact.com/truth-o-meter/article/2007/sep/05/mcain-federal/.

outside opportunities are systematically better qualified, then short-timers might be superior to careerists, even if they are not as motivated by the prospect of a long PTO career. Though uncommon, this is not unheard of, and would appear in the data as a negative return to tenure.[50]

At first glance, it might seem difficult to distinguish between the effects of experience and tenure. Any data analysis of examiners who have been at the office for an extended period of time necessarily will involve those with high levels of experience and tenure. Similarly, analysis of examiners who have been at the office only a short time will necessarily involve low experience and naturally would disproportionately involve the efforts of those with short tenure. To complicate matters still further, it is easy to imagine scenarios in which the relevant factors—private employment market, depth of tacit knowledge, workload pressures, etc.—vary by industry, and that these differences offset for particular categories of patents. Finally, any analysis is doubtlessly complicated by the overlapping effects at the individual level; presumably, there is some truth, for some examiners, to all of the hypotheses summarized above. With those concerns in mind, the following sections discuss an effort to design a data structure to test and quantify the relative weight of those hypotheses.

III. Data and Methods

To examine the effects of examiner tenure and experience, I started with a data set of 366 patents, which constitute the universe of patents for which the Federal Circuit issued a final decision on validity during the period 2003–2009. I then identified the primary examiner on each of those patents and collected a data set of all of the patents for which that individual ever served as the primary examiner through the spring of 2011 (when the data were collected). I should mention that many patents indicate two examiners: a more senior primary examiner (with supervising responsibility for the patent) and a secondary examiner (a relatively inexperienced employee at the assistant-examiner rank).[51] Although it might make a great deal of sense to allocate applications based on the experience and

50. Although literature examining tenure is relatively uncommon, it generally finds a positive return to tenure. *See, e.g.*, Katharine G. Abraham & Henry S. Farber, *Job Duration, Seniority, and Earnings*, 77 AM. ECON. REV. 278, 295 (1987) (finding a "strong positive relationship between job duration and earnings"); Richard T. Boylan, *Salaries, Turnover, and Performance in the Federal Criminal Justice System*, 47 J.L. & ECON. 75, 83 (2004) (showing that shorter tenure for U.S. attorneys results in worse performance); Dustmann & Meghir, *supra* note 43, at 100 (finding positive returns to firm tenure for both skilled and unskilled workers in Germany); Henry et al., *supra* note 46, at 1118 (noting research that shows exiting teachers are less effective than comparable teachers who stay in the occupation). *But see* Richard T. Boylan & Cheryl X. Long, *Salaries, Plea Rates, and the Career Objectives of Federal Prosecutors*, 48 J.L. & ECON. 627, 627–28 (2005) (finding an inverse relation between tenure and quality among U.S. attorneys, at least in markets with unusually high external labor opportunities).

51. Lichtman, *supra* note 20, at 158.

capabilities of particular examiners, it seems quite clear that this is not how it is done. Rather, confirming the findings of Lemley and Sampat on this point, I conducted a series of interviews with examiners of all ranks, which confirmed that once applications reach a particular art unit, they are allocated randomly among examiners in that unit.[52] Supervisory examiners explained that the effort required to determine whether any particular examiner in the unit might have more expertise for a particular application would dwarf the time available for distributing applications. Lower-level examiners, in contrast, emphasized the perceived unfairness of any allocation that allocated more (or less) work based on the views of "management" about the capabilities of particular examiners. In an office like the PTO with a strong union presence,[53] line-level examiners credibly emphasized that no such practice could persist without detection or survive its discovery.

Because the secondary examiner does not have the authority to grant or deny a patent,[54] and because all actions of a secondary examiner must be reviewed and verified by the primary examiner,[55] it seemed more sensible for my purposes to use the primary examiners.[56] Specifically, because my aim is to understand the quality of the work reflected in the issued patents, it seems appropriate to match the patents to the individual responsible for the patents in question.[57] That data collection produced a total of slightly more than 500,000 patents for 257 different examiners.[58]

Because the goal of the project was to understand the way in which examiner tenure and experience relate to the examiners' output (the issued

---

52. Lemley & Sampat, *supra* note 8, at 822.

53. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-720, INTELLECTUAL PROPERTY: USPTO HAS MADE PROGRESS IN HIRING EXAMINERS, BUT CHALLENGES TO RETENTION REMAIN 27 (2005), *available at* http://www.gao.gov/assets/250/246777.pdf (noting that the examiners' union is the "exclusive representative" of patent examiners with respect to any issues surrounding working conditions).

54. *See* Lemley & Sampat, *supra* note 8, at 819 (stating that secondary examiners do not have independent signatory authority until promoted to the rank of GS-14).

55. *Id.* at 818–19.

56. Because the decision to use primary examiners rather than secondary examiners eliminates separate consideration of the shortest-tenure examiners, those who are never promoted, it should make it harder to identify the differences between short- and long-tenure examiners that I discuss in the sections that follow.

57. As I explain below, the regression models reported in the body of the Article, where appropriate, control for the presence of a secondary examiner. *See infra* Tables 1 & 2.

58. Because many examiners have quite similar names, and because the name by which an individual examiner is identified on issued patents may change through the examiner's tenure, it is not possible with any degree of accuracy to match patents to examiners in an automated way. Rather, I "overcollected" for each examiner name with broad name searches, and then matched by hand the collected patents where appropriate to examiners in my data set. To be sure that I was matching the patents to the correct examiners, I used internal PTO records (obtained through a Freedom of Information Act request) that identify each examiner with a unique "worker number" that remains with the examiner throughout tenure in the office.

patents), I then matched that data set to the most recent version of the NBER Patent Citations Data File.[59] Although an updated version, that would include all patents issued through 2006 was scheduled for release in 2011, the most current version includes citations through 1999 for patents issued through 1999.[60] Because much of my analytical strategy depends on the average characteristics of the patents of each examiner, I excluded all examiners who examined fewer than fifty patents. At the end, this produced a data set of about 310,000 patents examined by 231 different examiners.[61]

For each of those patents, the data set includes several categories of variables. The first are patent-level variables that describe the characteristics of individual patents. These come either from the NBER data file, from International Business Machines Corporation (IBM's) "SIMPLE" database,[62] or are constructed from my calculations. The most important of the variables from the NBER and SIMPLE databases are the following:

- claims (the number of claims in the issued patent)
- references (the number of references in the patent)
- originality (the technological breadth of the references, calculated according to the methodology of Manuel Trajtenberg, Rebecca Henderson, and Adam Jaffe)[63]
- the mean age of the patents cited in the patent (calculated according to the methodology of Trajtenberg, Henderson, and Jaffe)[64]

Several of those variables have frequently been used in the existing literature assessing patents in various contexts. For example, the patent-

59. Bronwyn H. Hall et al., *The NBER Patent Citations Data File: Lessons, Insights and Methodological Tools* (Nat'l Bureau of Econ. Research, Working Paper No. 8498, 2001), *available at* http://www.nber.org/papers/w8498.pdf.

60. *The NBER U.S. Patent Citations Data File: Lessons, Insights, and Methodological Tools*, NAT'L BUREAU OF ECON. RES., http://www.nber.org/patents/ (last modified May 16, 2012).

61. Examiners with longer tenure are overrepresented in the data set because it is based on a sample of patents rather than a sample of examiners. Moreover, by dropping all examiners with fewer than fifty patents, I directly limit the information about extremely short-tenure examiners. Although these aspects of the data set make it unreliable for some purposes (such as describing the distribution of tenure among all examiners), they should, if anything, make it harder to identify the differences between short- and long-tenure examiners that I discuss in the sections that follow. Because all of the regression models reported below control for tenure, the overrepresentation of longer-tenure examiners should not bias the results.

62. *See generally* Ying Chen et al., *SIMPLE: A Strategic Information Mining Platform for IP Excellence*, IBM (Aug. 24, 2009), http://domino.research.ibm.com/library/cyberdig.nsf/papers/95D73078344701C9852576350055DBF3/$File/rj10450.pdf (describing how SIMPLE operates to parse patent data).

63. Manuel Trajtenberg, Rebecca Henderson & Adam Jaffe, *University Versus Corporate Patents: A Window on the Basicness of Invention*, 5 ECON. INNOVATION & NEW TECH. 19, 29–30 (1997).

64. *Id.* at 28–30.

quality literature in legal journals frequently has emphasized the number of claims and references in a patent as important indicators of litigation, and thus, indirectly of value.[65] Similarly, the econometric literature studying the diffusion of knowledge through patents often has emphasized the originality and age of references in a patent.[66] Because of the prominence of those variables in prior work, I use them in the analyses below assessing the relative importance of the effects of tenure and experience.[67] Recognizing the centrality of the pace of examination to recent PTO policy initiatives,[68] I add to that list one additional variable, the time that the patent spent in examination.[69] Collectively, those variables should illuminate enough disparate aspects of examiner output to shed light on the relative effects of experience and tenure. Figure 1 illustrates the variation in those variables.

The data set also includes a variety of other variables, including several variables related to future citations to the patent (the number of forward references, a measure of the breadth of those references, and a measure of the timing of those references).[70] As discussed by Mann and Underweiser, those variables have only indirect value in understanding the examination process because they measure events that occur after the patent has been issued.[71] Accordingly, although I use them in the descriptive

---

65. *See, e.g.*, John R. Allison & Ronald J. Mann, *The Disputed Quality of Software Patents*, 85 WASH. U. L. REV. 297, 316–19 (2007) (noting that litigated patents have significantly more claims and references than nonlitigated patents); John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435, 439–43, 451 (2004) (equating patent litigation with patent value and finding that patents with more claims and citations are more likely to be litigated); Kimberly A. Moore, *Worthless Patents*, 20 BERKELEY TECH. L.J. 1521, 1546 tbl.6 (2005) (categorizing valuable patents as litigated patents and showing that valuable patents have both more claims and cites).

66. *See, e.g.*, Adam B. Jaffe & Manuel Trajtenberg, *Introduction*, *in* PATENTS, CITATIONS, AND INNOVATIONS 3 (Adam B. Jaffe & Manuel Trajtenberg eds., 2002) (using patent-citation data to derive information about originality and citation time lag); *see also* Cockburn et al., *supra* note 7, at 36, 37 tbl.1 (noting that citations reveal patent characteristics such as technology class and date of approval); Trajtenberg et al., *supra* note 63, at 21–24 (discussing the data that can be determined by reference to patent citations).

67. *See* discussion *infra* subparts IV(A)–(B).

68. *See, e.g.*, 2013 USPTO PERFORMANCE & ACCOUNTABILITY REP. FISCAL YEAR 2013, at 17 [hereinafter USPTO PERFORMANCE], *available at* http://www.uspto.gov/about/stratplan/ar/USPTOFY2013PAR.pdf (detailing the agency's progress toward reducing patent application backlog as part of the agency's strategic goal to optimize patent timeliness).

69. To be sure, speed of examination is not necessarily positive because it could reflect cursory attention to work rather than diligence. It is, accordingly, important to consider the speed of examination in light of other attributes of issued patents.

70. Those data are the focus of a substantial body of work analyzing the pathways through which patents relate to the dissemination of technology over time. *See, e.g.*, Jaffe & Trajtenberg, *supra* note 66, at 66–67 (exemplifying the need to examine forward linkages in patent citations).

71. *See* Mann & Underweiser, *supra* note 36, at 15 ("[P]ostissuance variables are irrelevant to analysis of the decision to issue."). The variables related to forward references are even more problematic here because they are likely to be affected by the examiner's own behavior. For example, examiners who have a longer tenure after examination of a particular patent will have a greater opportunity to cite the patent in the future than examiners who leave office shortly after issuance of the first patent.

portion of the discussion (largely because of their frequent use in existing literature about patent quality), I do not use any of the variables related to "forward" references in my analysis of the examiner's output. To facilitate analysis of changes in those variables through an examiner's career, as well as within- and between-examiner effects, I also use the mean values for all of the patent attribute variables for each examiner.

Figure 1: Variation in Patent Characteristics

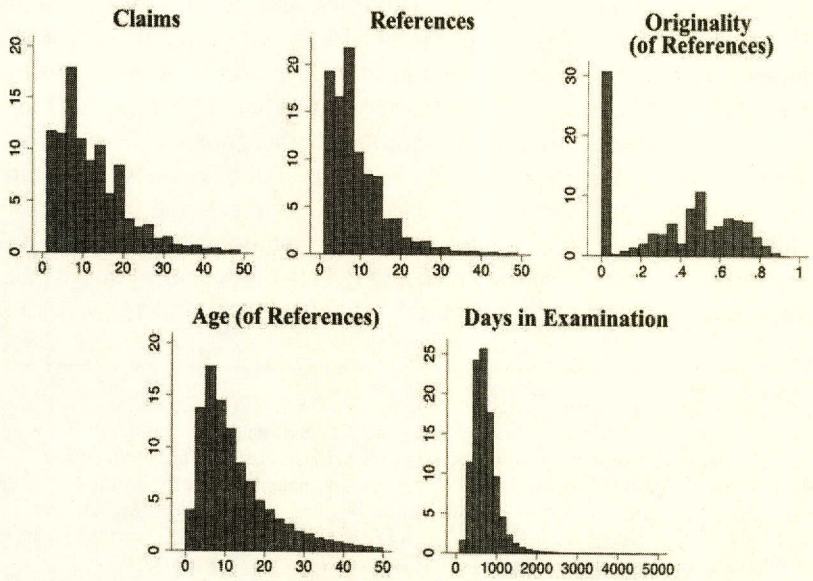


Figure 1: Panels display percentage distributions of the listed attributes. Claims, references, and age (of references) truncated at fifty. $N = 288{,}982 - 313{,}247$.

Because the purpose of the Article is to assess the relationship between the career paths of examiners and the quality of their output, I also created variables to measure those paths. Thus, to measure the experience and tenure of the examiner, I calculated for each patent the following characteristics:

- Experience (Years)—the number of years between the first patent examined by the relevant examiner and the patent
- Tenure (Years)—the total number of years between the first and last patents examined by the relevant examiner
- Career—the share of the examiner's career (measured in patents) that has elapsed when the patent is issued

Following convention in the labor-relations literature on employment and tenure,[72] the analyses in the sections that follow use the measures of tenure and experience based on time in the office rather than patents examined.

I also matched the data described above to data about the attributes of individual examiners that I obtained through a Freedom of Information Act request submitted to the PTO. Although I was unable to obtain information about age or demographic characteristics (because of privacy concerns), I did obtain information about the examiners' time in the office, the art units in which they worked, the ranks that they held, and most importantly, the degrees that the examiners held when they came to the office. Figure 2 illustrates the variation in the most important variables used in the analysis below: tenure and educational attainments among examiners.

Figure 2: Variation Among Examiners

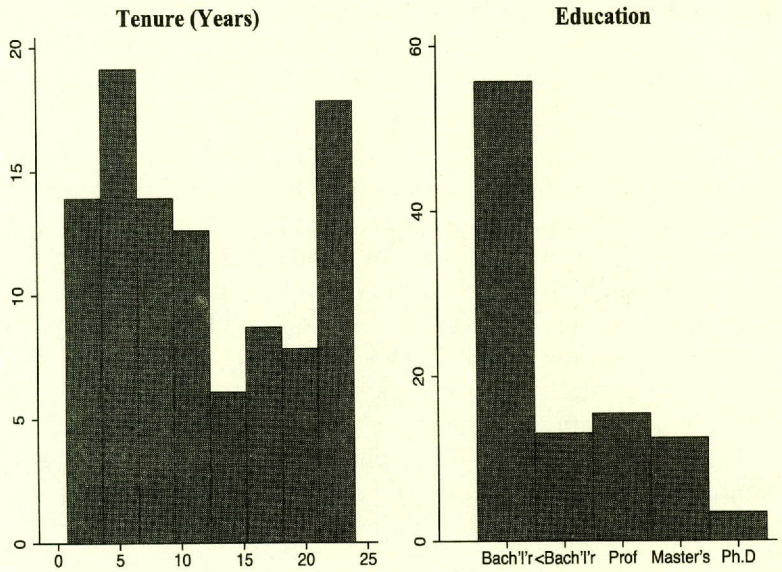


Figure 2: Variation Among Examiners. $N = 218, 230$. Figures display percentage distributions of examiner attributes.

Recognizing the likelihood that the measurements of examiner tenure and quality will differ substantially over time and by technology, the data set also includes three sets of controls for technology and cohort. The first is the national class in which the patent was issued. Because this variable

72. *See, e.g.*, Sparrow & Davies, *supra* note 43, at 309 (defining tenure as length of service).

has more than 400 values, it is not useful for understanding differences among broad technological groups. The analyses below use the two overlapping constructed variables described by Bronwyn Hall, Adam Jaffe, and Manuel Trajtenberg: the more general of which allocates all patents to six technological categories, and the more finely grained of which allocates all patents to thirty-six technological categories.[73] Where it is useful to account for cohort effects, the models described below control for the year in which the relevant application was filed.

IV. Results

I present the analysis in three steps. First, I document the substantive importance of the effects of tenure. Second, I show that the effects of tenure and experience point in opposite directions, with a lame-duck effect exacerbating the effects of experience in the last year before the end of employment. Finally, I discuss the effects of education: although educational attainments correlate in important ways with tenure and have substantial effects on the output of the examiners, they do not explain a substantial part of the experience and tenure effects discussed in the preceding sections.

A. Tenure

Prior efforts to consider the features of individual examiners that might explain variation between examiners have been limited for various reasons. Most importantly, it has been difficult for a variety of reasons to obtain any substantial information about the characteristics of individual examiners.[74] Thus, prior work has emphasized what can be inferred from the output of the examiners: their time at the PTO and their workflow while there.[75] Lemley and Sampat specifically note the possibility that the total length of employment might relate to examiner output (and thus explain, in part, the effects of experience that they document).[76] They emphasize, however, their inability to examine the effects of long-term employment directly because of limitations in their data structure.[77]

---

73. Hall et al., *supra* note 59, at 12–13.

74. *See* Lemley & Sampat, *supra* note 8, at 819 (characterizing officially reported PTO examiner data as disorganized and error filled).

75. *See id.* at 817 (assessing how examiner experience affects patent outcomes).

76. *See id.* at 825 (positing that examiner tenure may affect output).

77. *See id.* at 824 (citing the limited data available to examine effects of long-term employment). The final models presented in Lemley and Sampat do control for the possibility that the examiner will leave within five years after the date that the patent was examined and find relatively limited effects. *Id.* at 825. That analysis does not seem to suggest anything about effects related to the examiner's tenure; rather, it simply shows whether the patent was examined close to the end of the examiner's tenure (however long it might be). As discussed below, I do find a small, but statistically significant, lame-duck effect. *See infra* subpart IV(B).

The data analyzed here, however, permits more intricate analysis. Given the obvious relation between the effects of experience (which should grow over time) and the effects of careerism (which would be apparent in the data immediately upon employment), it is particularly valuable to have data that can distinguish those effects. To be sure, it is somewhat harder to identify the effects of tenure because they are so closely related to the effects of experience. The variables obviously are at least partially collinear: all of the patents examined by examiners with the highest level of experience will have been examined by examiners who have the longest tenure.[78] Moreover, there are theoretical reasons for thinking tenure might affect experience: Ray Reagans, Linda Argote, and Daria Brooks argue that the returns to learning by doing will increase with the average tenure of workers in the office.[79]

One simple way to distinguish between the two variables would be to look at the earliest patents for all examiners. Thus, Figure 3 illustrates the mean attributes for the first fifty patents examined by the examiners with the shortest tenure—less than five years total employment—with the mean attributes for the first fifty patents examined by the examiners with the longest tenure—more than twenty years total employment.[80] As that figure illustrates, the data provide strong support for the idea that tenure has an effect distinct from that of experience. Already within the first fifty patents, the output of the examiners who will remain as examiners for the longest period differs markedly from the output of those who will stay the shortest period. For each of the five reference variables, the difference is statistically significant at the 0.001% level. More importantly, in most cases the differences are substantively noteworthy. To take only the simplest variables, the patents of the longest-tenured examiners, on average, have more than twice as many references (16 versus 7) as those of the shortest-tenure examiners, substantially more claims (17 versus 11), and a much faster period of examination (710 days versus 820).

Although Figure 3 suggests that long- and short-tenure examiners behave very differently when they first begin work at the PTO, it tells us little about how behavior shifts as tenure progresses, about the returns to increasing tenure, or how increasing tenure might affect the returns to

---

78. *See* Lemley & Sampat, *supra* note 8, at 826 (observing the "strong relationship" between experience and tenure).

79. *See* Ray Reagans, Linda Argote & Daria Brooks, *Individual Experience and Experience Working Together: Predicting Learning Rates from Knowing Who Knows What and Knowing How to Work Together*, 51 MGMT. SCI. 869, 874 (2005) (postulating that because professional experience grows concomitantly with tenure, productivity should increase as well).

80. I made similar calculations using the first 100 patents, but this required me to drop a number of the shortest-tenure examiners (because they examined fewer than 100 patents). The results are similar, though the differences are not as substantial as those summarized in Figure 3. To put the 50- and 100-patent levels in perspective, the median rate of patents examined per year in the data set is about 62.

experience documented by Lemley and Sampat[81] and confirmed above.[82] Nor does it explore the possibility that education might explain or contribute to any such returns. The sections that follow explore those questions in turn.

Figure 3: Experience and Tenure (1st 50 Patents)

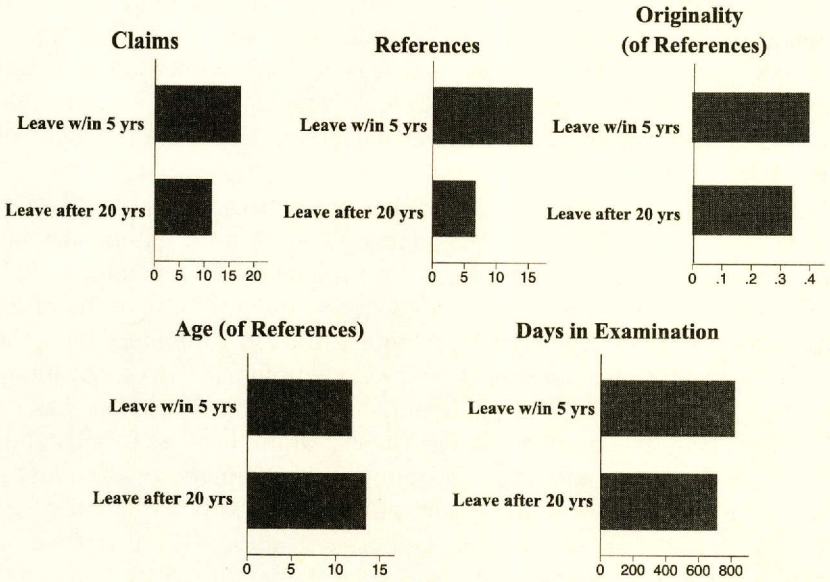


Figure 3: Experience Versus Tenure (First 50 Patents). $N = 4903 - 5299$. Bars show mean values on listed variables for the first fifty patents of shortest-career quintile of examiners (< 5 years in office) and longest-career quintile of examiners (> 20 years in office). All differences significant at 0.001%.

B. Specifying the Distinct Effects of Experience and Tenure

To disentangle the effects of experience and tenure, I estimated a series of five distinct random-effects models for each of the five patent attributes discussed above. Each of the models includes controls for technology, cohort,[83] type of assignee, and the presence of an assistant examiner. In

81. *See* Lemley & Sampat, *supra* note 8, at 820–22 & tbls.2, 3 & 4 (documenting effects of examiner experience on citation patterns and patent grant rate).

82. *See supra* text accompanying notes 74–79.

83. I explored different ways of accounting for cohort but settled on a linear variable that measures the date of the application (centered on 1990). Alternate specifications included a quadratic term, interactions, and a dummy for whether the patent was issued before or after formation of the Federal Circuit.

each case, the dependent variable is the relevant patent attribute.[84] Collectively, the output of those models should tell us a great deal about the relation among those various examiner attributes. For illustrative purposes, the text displays only the results with regard to claims and days in examination. For all five variables, the results point in the same direction and have similar levels of magnitude and statistical significance.[85]

The decision to emphasize claims and days in examination reflects the reality that those attributes, unlike references (and the generality and age of references), are most directly within the control of examiners. Indeed, if we accept the premise that assignment of applications is essentially random within art units,[86] then the results from models that control for technology and cohort should credibly identify differences in the work of different examiners. Moreover, each of those attributes has substantial policy significance. For example, the number of claims has been used most pervasively in the existing literature as an indicator of patent value; multiple papers document a substantially larger number of claims in litigated patents than in non-litigated patents.[87] Similarly, Kimberly Moore finds that assignees are more likely to pay (and continue to pay) maintenance fees on patents with more claims.[88] In the same vein, John Allison and Ronald Mann use the number of claims as a proxy for value to examine the relative value of software and non-software patents.[89]

To be sure, the relation between claims and patent quality is much more ambiguous than between claims and value. As Allison and Mann explain, the relation between claims and value is just as likely to relate to the likelihood that patents with more claims are more likely to be challenged in litigation as it is to relate to the likelihood that the patents are better crafted.[90] Building on that insight, Mann and Underweiser show that the relation between claims and validity is weak at best and negative if anything.[91] The general idea is that a more thorough examination will result

---

84. I also estimated models for each attribute with examiner-level fixed effects. Because tenure is an examiner-level variable, those models allow me to estimate the effects of experience, but do not allow me separately to estimate the effects of tenure. Accordingly, I discuss in the text only the random-effects models for which I can include both experience and tenure in the same model. The results of the fixed-effects models are substantively similar and available from the author on request.

85. Results available from the author on request.

86. *See supra* note 52 and accompanying text.

87. *E.g.*, Allison et al., *supra* note 65, at 438; Jean O. Lanjouw & Mark Schankerman, *Characteristics of Patent Litigation: A Window on Competititon*, 32 RAND J. ECON. 129, 131 (2001).

88. *See* Moore, *supra* note 65, at 1530, 1531 tbl.1 (finding patents that expired due to nonpayment of maintenance fees "had fewer claims than patents that were maintained to the full term" and that "[p]atents that expired earlier . . . had fewer claims than patents that expired later").

89. Allison & Mann, *supra* note 65, at 318, 321.

90. *Id.* at 318.

91. Mann & Underweiser, *supra* note 36, at 26.

in a patent with fewer claims because the examiner's effort will force the applicant to remove the more marginally valid claims before the patent is issued.[92]

Though not as well established in the academic literature, time in examination is similarly important in policy analysis of the patent system. This metric has preoccupied the PTO during recent decades as backlogs of applications awaiting examination have pushed the time of issuance farther and farther from the original date of invention.[93] Increased time between an application and a grant has several noteworthy pernicious effects. Most obviously, it shortens the patent term, thus undermining the value of the monopoly the system is designed to promote.[94] More perversely, it shifts the beginning of the monopoly later in time, increasing the likelihood that when others in the industry first learn of the patent, they will have developed related technologies that now for the first time infringe a just-issued patent.[95] That problem is particularly serious when the technologies overlap, so that competing patents "block" each other, which means that neither patentee can exploit its patent without consent from the other.[96] For that reason, time in examination seems an important patent attribute for purposes of assessing variation in examiner output.

Tables 1 and 2 summarize the results of those models for claims and days in examination. As those Tables indicate, the results for the two variables are substantively quite similar. In the first model for both variables, the effects of experience are essentially linear, increasing monotonically with experience. The effects of tenure, by contrast (in Model 2) are negative in both cases up to the twenty-year point. Model 3 includes both tenure and experience. As expected, the inclusion of the two cross-cutting variables in the model magnifies the opposing effects for each; in all cases the coefficients for experience and tenure are larger in Model 3 than in Models 1 and 2. In both cases, the effects of tenure and experience are magnified when both variables are included in the same model; this makes sense if the effects cut against each other because the

92. *See id.* at 8–9 (noting that the relationship between invalid patents and numerous claims may be mitigated by a thorough examination).

93. *See, e.g.*, USPTO PERFORMANCE, *supra* note 68, at 8 (characterizing reduction in application backlog as an integral part of USPTO's organizational mission).

94. *See* 35 U.S.C. § 154(a)(1) (2012) (defining the grant of a patent as the "right to exclude others from making, using, offering for sale, or selling the invention throughout the United States").

95. *See, e.g.*, Warren K. Mabey, Jr., *Deconstructing the Patent Application Backlog . . . A Story of Prolonged Pendency, PCT Pandemonium & Patent Pending Pirates*, 92 J. PAT. & TRADEMARK OFF. SOC'Y 208, 244–45 (2010) (acknowledging the argument that prolonged pendency encourages competitors to design similar products).

96. *See, e.g.*, Steven C. Carlson, *Patent Pools and the Antitrust Dilemma*, 16 YALE J. ON REG. 359, 379 (1999) (explaining that overlapping patent rights require a cooperative agreement between patentees before a patent can be utilized).

inclusion of both variables helps to isolate the separate effects of tenure and experience more completely. The effects are substantively important. For example, against a constant of almost 19 claims, the average number of claims increases steadily with experience to about 25 claims for the patents of examiners with more than twenty years of experience at the time the patent issued. Conversely, the average number of claims decreases steadily with tenure to a minimum of about 13 for the patents of examiners whose time in the office exceeded twenty years. The results are parallel for time in examination. Against a constant of almost 1,500 days (a little more than four years), the time in examination more than doubles to an average of more than 3,300 days for the patents of examiners with more than twenty years of experience at the time the patent issued. Conversely, the average days in examination decreases steadily with tenure. Setting aside the effects of experience, the coefficient in the model suggests that the average days in examination in fact would be negative for the patents of examiners whose time in the office exceeded twenty years. This obviously reflects that many of those patents in fact involve examiners with lengthy experience, for which a countervailing increasing effect is present. Models 4 and 5 explore the role of education, which is discussed below.

Finally, following Henry, Fortner, and Bastian; and Lemley and Sampat, Model 6 explores the possibility of a lame-duck effect at the end of an examiner's time in the office. As summarized in the last column of Tables 1 and 2, there is a significant lame-duck effect in each case, of comparable magnitude, exacerbating the effects of experience; the relation with experience is most apparent from the slight decreases in each of the coefficients on experience as we move from Model 5 (which does not include last year) to Model 6 (which does). Thus, against a constant of almost 19 claims, the number of claims in the last year is about one higher; against a constant of 1,500 days in examination, the time in examination increases by about 100 days during the last year the examiner is in the office.[97]

The robustness of those effects is supported by the similar results for the three variables not displayed in Tables 1 and 2, all of which point in the same directions as the results for claims and days in examination. To illustrate and quantify the overall patterns, Figures 4 and 5 display margins-plots illustrating the shifts in the net-predicted values for all five of the variables with increasing experience and tenure. Starting with Figure 4,

97. The intuition here is that the presence of an assistant examiner is likely to affect the workflow. It could slow the process (if the assistant examiner works less rapidly than the primary examiner), or it could speed the process (if the assistant examiner has a lighter workload). For similar reasons, the presence of an assistant examiner could relate positively or negatively to the vigilance and effort with which the application is examined. This control is particularly important given the different ways in which prior literature has defined the concept of "examiner" to be studied.

which displays the returns to experience, the most important thing about the figure is the parallel trends for all the variables. In each case, the patent attributes steadily increase with experience, and in most cases, the increases are substantively significant. So, for example, the predicted number of claims increases steadily from 11.0 for examiners with less than five years' experience to 16.9 for examiners with more than twenty years' experience; the predicted number of days in examination increases from 58 for examiners with less than five years' experience to 1,900 for examiners with more than twenty years' experience. The predicted number of references increases monotonically from 8.2 for examiners with less than five years' experience to 15.7 for examiners with more than twenty years' experience.

The marginsplots in Figure 5 confirm the converse effects of tenure, with all of the variables displaying decreases with increasing tenure. Although the declines are not as consistent across variables as they are for experience, they do for the most part display monotonic and substantively significant declines. Most notably, the predicted number of claims decreases steadily from 17.4 for examiners who will leave within five years to 11.9 for examiners who will remain more than twenty years, the predicted number of days in examination decreases steadily from more than 2,000 for examiners who will leave within five years to about 260 for examiners who will remain more than twenty years, and the predicted number of references decreases from 16.1 for examiners who will leave within five years to 8.9 for examiners who will remain more than twenty years.

Table 1: Examiner Characteristics and Claims

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
5–10 years experience	0.98*** (0.07)		1.37*** (0.08)	1.17*** (0.08)	1.55*** (0.09)	1.53*** (0.09)
10–15 years experience	1.64*** (0.16)		2.40*** (0.13)	1.95*** (0.13)	2.70*** (0.14)	2.68*** (0.14)
15–20 years experience	2.66*** (0.16)		3.75*** (0.18)	3.09*** (0.17)	4.17*** (0.20)	4.11*** (0.20)
>20 years experience	4.05*** (0.21)		5.42 (0.24)	4.61*** (0.23)	5.96*** (0.26)	5.90*** (0.26)
Left w/in 5–10 years		–0.66 (0.41)	–1.49*** (0.41)		–1.51*** (0.42)	–1.57*** (0.38)
Left w/in 10–15 years		–1.27** (0.45)	–3.52*** (0.47)		–3.17*** (0.51)	–3.15*** (0.45)
Left w /in 15–20 years		–1.29** (0.47)	–5.05*** (0.47)		–4.98*** (0.56)	–4.97*** (0.50)
Left after >20 years		–0.80 (0.42)	–5.19*** (0.47)		–5.46*** (0.50)	–5.45*** (0.45)
<Bachelor's				–2.28*** (0.52)	–1.37* (0.55)	–1.36** (0.48)
Professional Degree				–2.53*** (0.55)	–1.38* (0.57)	–1.19* (0.50)
Masters				0.49 (0.45)	0.43 (0.45)	0.43 (0.39)
Ph.D.				–0.25 (0.60)	–0.89 (0.61)	–0.83 (0.53)
Last Year						1.06*** (0.24)
Constant	16.00*** (0.20)	17.08*** (0.33)	18.70*** (0.34)	16.32*** (0.24)	18.86*** (0.34)	18.90*** (0.33)
Number of observations	288,950	288,950	268,270	268,270	268,270	268,270

Table 1: Examiner Characteristics and Claims. Models report the coefficients on the listed examiner characteristics from random-effects models estimating the relation between the listed examiner characteristics and the number of claims in the issued patent. Controls for technology, cohort, type of assignee, and presence of an assistant examiner omitted. Standard errors in parentheses. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Table 2: Examiner Characteristics and Days in Examination

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
5–10 years experience	407.64*** (1.95)		473.42*** (1.99)	428.51*** (2.04)	495.29*** (2.08)	490.22*** (2.07)
10–15 years experience	734.13*** (3.10)		864.20*** (3.22)	782.12*** (3.25)	914.18*** (3.37)	910.48*** (3.36)
15–20 years experience	1074.0*** (4.33)		1262.6*** (4.52)	1148.2*** (4.53)	1339.5*** (4.71)	1337.4*** (4.69)
>20 years experience	1499.1*** (5.69)		1741.6*** (5.92)	1594.2*** (5.92)	1840.0*** (6.15)	1815.1*** (6.14)
Left w/in 5–10 years		−99.97*** (14.37)	−426.9*** (14.19)		−407.5*** (14.29)	−385.3*** (14.15)
Left w/in 10–15 years		−157.4*** (16.71)	−974.9*** (16.97)		−772.2*** (17.93)	−745.2*** (17.76)
Left w /in 15–20 years		−211.7*** (17.60)	−1548.3*** (18.24)		−1491.4*** (19.26)	−1465.0*** (19.07)
Left after >20 years		−210.2*** (15.59)	−1747.4*** (16.47)		−1794.4*** (16.29)	−1763.7*** (16.14)
<Bachelor's				−627.4*** (19.24)	−262.6*** (20.07)	−256.7*** (19.86)
Professional Degree				−535.2*** (18.54)	−167.2*** (19.25)	−157.0*** (19.07)
Masters				71.53*** (16.22)	51.11** (15.94)	49.00** (15.77)
Ph.D.				331.99*** (22.01)	117.85*** (21.69)	114.17*** (21.46)
Last Year						103.24*** (2.04)
Constant	684.7*** (6.2)	922.1*** (11.22)	1519.4*** (11.20)	737.95*** (7.67)	1488.8*** (11.78)	1454.9*** (11.68)
Number of observations	311,518	311,518	311,518	290,826	290,826	290,826

Table 2: Examiner Characteristics and Days in Examination. Models report the coefficients on the listed examiner characteristics from random-effects models estimating the relation between the listed examiner characteristics and days between the application and issuance of the patent. Controls for technology, cohort, type of assignee, and presence of an assistant examiner omitted. Standard errors in parentheses. * $p < 0.05$ ** $p < 0.01$*** $p < 0.001$.

Figure 4: Returns to Experience

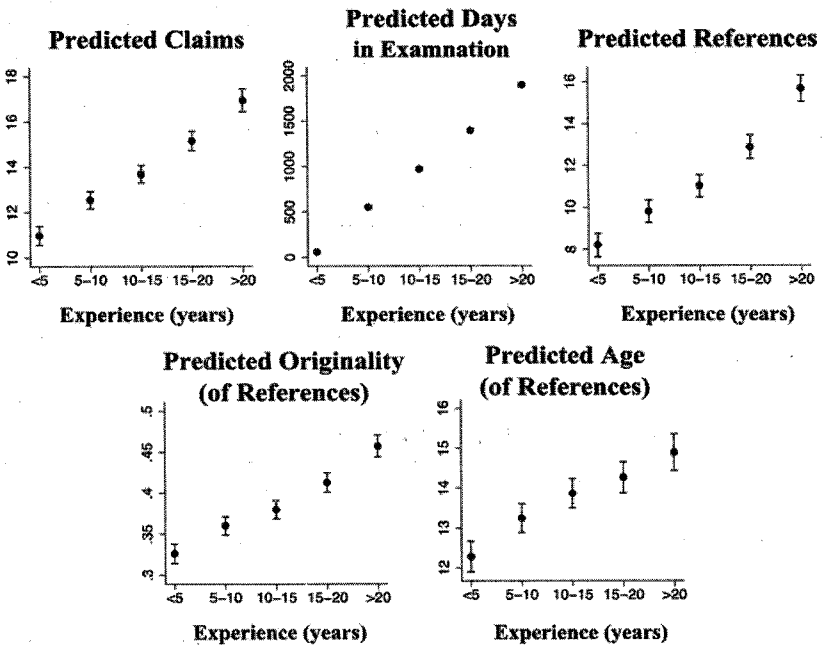


Figure 4: Returns to Experience. $N = 288{,}950 - 311{,}518$. Panels display predicted values of indicated patent attributes, with 95% confidence intervals, for the indicated years of experience of the examiner when the patent issued.

Figure 5: Returns to Tenure

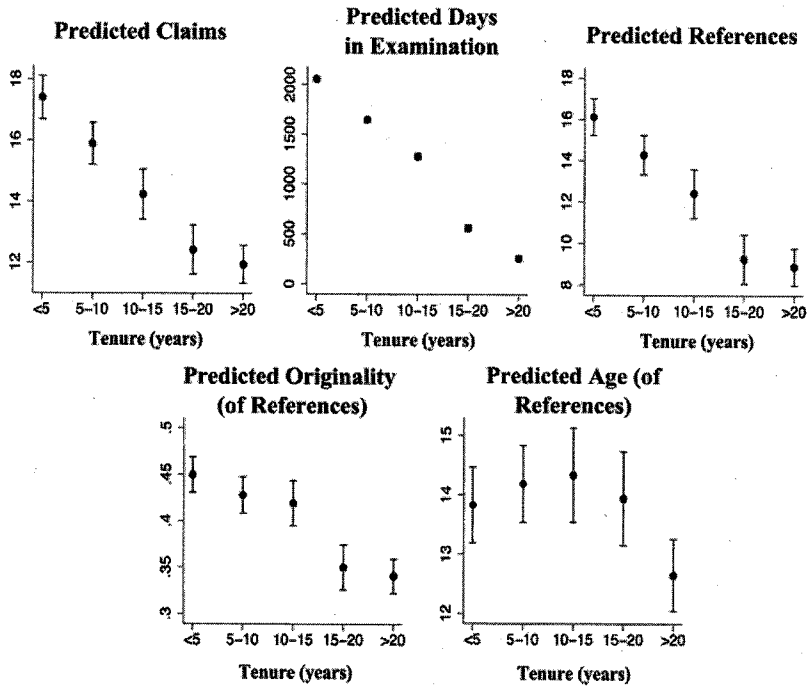


Figure 5: Returns to Tenure. $N = 288{,}950 - 311{,}518$. Panels display predicted values of indicated patent attributes, with 95% confidence intervals, for the indicated years of total tenure of the examiner.

C. *The Effects of Education*

The final topic of interest is the role of education. The analysis summarized above models education as a static attribute of the examiner, fixed at the time the examiner begins work at the PTO, which is consistent with the structure of the data on education received from the PTO. Accordingly, education, like tenure, is an examiner-level variable in the regressions summarized in Tables 1 and 2. As those tables indicate, the effects of education are statistically and substantively significant. Several points are apparent.[98] Most obviously, the data (summarized in Models 4 and 5) indicate a substantial shift in the patent attributes (parallel to the effects of experience) as education increases. So, for example, for days in examination, the constant of about 1,500 days reflects the expectation for

98. Although Tables 1 and 2 depict only the analysis of claims and days in examination, the relations between education and the other patent attributes (references, originality of references, and age of references) are similar.

the omitted category—examiners with a bachelor's degree. The coefficient for examiners with less than a bachelor's degree suggests a decline of about 260 days for examiners without a bachelor's degree and about 160 days for examiners with a professional degree (presumably, mostly law degrees). Conversely, the data suggest an increase of about 50 days for examiners with a master's degree and 120 days for examiners with a Ph.D. In general, if we work here from the same premise as above (that increases in the attributes reflect a decline in the quality of output), this suggests that the least successful examiners are those with the most education. Also, interestingly, a professional degree seems to contribute positively as compared to a bachelor's degree alone, although master's and doctoral degrees do not. Although any attempted explanation is speculative, the results at least suggest that advanced degrees loosely correlate with a personality type unsuited for the routinized work of a patent examiner, and that the most common professional degree (a law degree) is a particularly useful credential.

The relations among education, tenure, and experience also are interesting. Because the effects of increasing education generally cut in the same direction as the effects of experience (and opposite to the effects of tenure), it is not surprising that the inclusion of education in Models 4 and 5 produces a lower set of coefficients on education than in Model 2 and 3 respectively (which omit education). The inclusion of education variables in Model 5 seems to support a substantial increase in the apparently positive effects of tenure (as compared to Model 3).

Accepting that understanding of improvement brings those figures directly into line with a relatively typical understanding of the employment relationship. On the one hand, the people who are more suited to the job stay longer (evidenced by a steady positive return to increasing tenure). On the other hand, at all levels, the quality of effort declines over time (a burnout effect). That effect appears to be relatively steady throughout the period of employment and across all levels of tenure.

V. Conclusion

Given the strong likelihood that assignment of patent applications to individual examiners is almost entirely random,[99] the findings summarized above suggest important differences in examiner output that rest on characteristics of the examiners themselves (as opposed to the experience that they have gained in the office), effects apparent from the earliest days of the individual examiner's work. That analysis thus has important implications for staffing and labor policies at the PTO. If we accept the idea that the findings related to tenure point in the direction of a positive return to

99. Lemley & Sampat, *supra* note 8, at 822.

tenure, then they suggest that the PTO would be better served by increasing the share of its workforce that is "careerist" in outlook. At the same time, the data do support the implication of Lemley and Sampat that increasing experience relates to a decline in the quality of output.[100]

Responding to the problem is not simple. Reforms that encourage employees to stay in the office longer well might encourage the least capable employees not to leave. Similarly, reforms that shift the "selection" process of examiners well might increase the number of examiners who will perform poorly and well might even lead to the hiring of poor-performing long-tenure examiners. This suggests, relatively speaking, that a greater emphasis on recruiting and hiring would be more valuable than a greater emphasis on employee training and retention. So, for example, this strongly supports the ongoing initiatives undertaken in the last several years to decrease attrition by attracting employees who plan to work at the PTO for a longer share of their lifetime employment.[101] It also suggests the benefits of a broader look at other alternatives for improving the attractiveness of the position, as emphasized by Merges.[102]

In the end, given the limited understanding these data provide about precisely which features of examiners relate to the positive effects associated with tenure, it is quite difficult to be sure that any particular employment reforms would increase the share of high-quality examination. Thus, the plainest message of this work is to underscore the importance of further work that might relate individual characteristics of examiners (educational background, age, or the like) to tenure of employment at the PTO. Only with data about individual examiners can we identify directly the characteristics most likely to result in the long-term careerist behavior identified above. Still, the strength of the relationships summarized here suggests that the subject warrants further inquiry.

---

100. *See id.* at 826 (concluding that "senior examiners are doing less work, rather than . . . merely getting it right more often than junior examiners").

101. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-720, INTELLECTUAL PROPERTY: USPTO HAS MADE PROGRESS IN HIRING EXAMINERS, BUT CHALLENGES TO RETENTION REMAIN 16–17 (2005), *available at* http://www.gao.gov/assets/250/246777.pdf (describing how the USPTO responded to calls "to better target candidates likely to stay" by studying the skills of experienced examiners and participating in recruiting events).

102. Merges, *supra* note 40, at 606–09.

The Essential Role of Courts for Supporting Innovation

Erin O'Hara O'Connor* & Christopher R. Drahozal**

I. Introduction

In most commercial exchange, formal legal principles and court systems play a surprisingly small role for transacting parties. Stuart Macaulay interviewed a group of Wisconsin business people in the 1960s and found that they had little regard for the prospect that lawyers could add value to a transaction.[1] To the contrary, interviewees complained that lawyers often got in the way of their business dealings, and that they preferred to do business by handshake rather than by contract.[2] When contracts were drafted at the formation of their business relationships, they were typically tossed into a drawer or file and never again consulted. These business people typically resolved their conflicts through extralegal means, without regard to the terms of their contract and without resort to formal dispute resolution processes.[3]

Even when contracting parties do end up involved in disputes they cannot resolve on their own, some claim that they are much more likely to resort to informal dispute resolution mechanisms, including mediation and arbitration, than they are to resort to courts. For example, Lisa Bernstein has documented the extensive use of arbitration by firms in the commodities trade, by which they opt out of the court system altogether and enforce trade rules by reputational sanctions rather than government force.[4]

---

* Milton R. Underwood Chair in Law, Vanderbilt Law School.

** John M. Rounds Professor of Law and Associate Dean for Research and Faculty Development, University of Kansas School of Law. Professor Drahozal is serving as a Special Advisor to the Consumer Financial Protection Bureau (CFPB) on its study of arbitration clauses in consumer financial services contracts. Professor Drahozal coauthored this Article in his personal capacity. The views in this Article are his own, not those of the CFPB or the United States. We appreciate helpful comments from participants at the Symposium, especially our commenter, Ted Sichelman. Thanks also to Michael Bressman, Daniel Gervais, Robert Merges, and Sean Seymore for helpful advice, and to Jacob Byl, Michael Albani, Beau Creson, Julia Drahozal, Jean Ménager, and Richard Shie for their exemplary research assistance.

1. Stewart Macaulay, *Non-Contractual Relations in Business: A Preliminary Study*, 28 AM. SOC. REV. 55, 55 (1963).

2. *Id.* at 58.

3. *Id.* at 61.

4. *See generally, e.g.*, Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Business Norms*, 144 U. PA. L. REV. 1765 (1996) (examining the National Grain and Feed Association as a private legal system); Lisa Bernstein, *Private Commercial Law in the Cotton Industry: Creating Cooperation Through Rules, Norms, and Institutions*, 99 MICH. L. REV. 1724 (2001) (examining the use of private legal systems in the cotton industry).

Such a reliance on private dispute resolution has led some to suggest that courts have become effectively irrelevant to commercial law.[5]

It turns out that innovation is distinctly different, however. According to recent studies, parties to innovative contracts and those operating in innovative environments rely much more heavily on lawyers and contract documents than do their counterparts in non-innovative environments. For example, Iva Bozovic and Gillian Hadfield recently conducted a follow-on study to McCauley's to glean whether today's business people share the same contempt for lawyers, contracts, and courts that McCauley observed in 1963.[6] They found that California business people operating in firms that conducted business deemed non-innovative shared the same attitudes that McCauley observed.[7] But those operating in firms involved in innovation reported very different attitudes.[8] These business people regularly consulted with lawyers in putting together their deals, and they routinely wanted a formal written document to memorialize their agreements.[9] Moreover, the contract would regularly be consulted, at least privately, when conflict emerged.[10]

Bozovic and Hadfield explain the difference between innovating and non-innovating firms as resulting from differences in the thickness of business norms. In more static business environments, norms of acceptable commercial conduct develop to guide the behavior of market actors.[11] When conflict arises in these commercial contexts, the norms become the reference point for the parties, making formal legal institutions largely irrelevant at best and counterproductive at worst.[12] By contrast, in innovative contexts, where a market, good, or service is just emerging,

---

5. Of course, some authors have suggested that sophisticated parties prefer courts to arbitration, as shown by the limited use of arbitration clauses in corporate transactional contracts. Theodore Eisenberg & Geoffrey P. Miller, *The Flight from Arbitration: An Empirical Study of Ex Ante Arbitration Clauses in the Contracts of Publicly Held Companies*, 56 DEPAUL L. REV. 335, 335 (2007); *see also* Jens Dammann & Henry Hansmann, *Globalizing Commercial Litigation*, 94 CORNELL L. REV. 1, 31 (2008) ("In practice, arbitration does not seem to compete strongly with well-functioning public courts."). The two positions can be reconciled, it turns out, based on the types of contracts examined. *See* Christopher R. Drahozal & Stephen J. Ware, *Why Do Businesses Use (or Not Use) Arbitration Clauses?*, 25 OHIO ST. J. ON DISP. RESOL. 433, 457–67 (2010) (noting that arbitration clauses are most prevalent in ordinary contracts between businesses but are less likely to be found in contracts outside of the ordinary course of business, e.g., loan commitments and merger agreements).

6. Iva Bozovic & Gillian K. Hadfield, Scaffolding: Using Formal Contracts to Build Informal Relations in Support of Innovation 6 (Aug. 26, 2013) (unpublished manuscript), *available at* http://works.bepress.com/cgi/viewcontent.cgi?article=1055&context=ghadfield.

7. *Id.* at 9.

8. *Id.* at 10.

9. *Id.* at 16–17.

10. *Id.* at 22.

11. *Id.* at 5.

12. *Id.* at 15.

shared business norms typically have not yet developed.[13] The parties therefore use lawyers and contracts as norm substitutes.[14]

Notwithstanding this reliance on legal documents, however, Bozovic and Hadfield's interviewees consistently expressed a strong commitment to staying out of court.[15] The documents might guide their transacting behavior, but disputes were to be settled privately.[16] This last finding is consistent with common intuitions about commercial-party avoidance of courts. Scholars have documented a number of private mechanisms that parties commonly use for avoiding or resolving contract disputes, including expected future gains and the use of prepayment, hostage taking, collateral, reputational sanctions, and mediation, among others.[17] In most cases, these mechanisms can be cheaper, quicker, and more effective than courts, and many of them are more likely to fulfill the goal of preserving the future benefits of the parties' relationship.[18] Not surprisingly, then, they show up as common features of commercial contracts and trade-association support systems.[19]

Even though innovating firms rely on lawyers and contracts, the terms that they negotiate often cannot be enforced in a court of law. In their work on contracting for innovation, Gilson, Sabel, and Scott emphasize the fact that most of the critical terms of contracting parties' relationships cannot be specified in contracts that contemplate the development of innovative products and services.[20] In the context of joint venture or innovative outsourcing contracts, for example, the parties are contracting for the production of something that does not yet exist. In that environment, it is impossible to specify price and quantity. Indeed, parties cannot typically specify either the end result or the parties' duties in developing the

---

13. *Id.* at 5.

14. *Id.* at 6–7.

15. *Id.* at 18–20.

16. *Id.* at 16–17.

17. *See, e.g.*, *id.* at 19–20 (documenting expected future gain and reputational sanctions as performance assurances); Howell E. Jackson, *Regulation in a Multisectored Financial Services Industry: An Exploratory Essay*, 77 WASH. U. L.Q. 319, 341 (1999) (noting prepayment and security as methods for insuring against nonperformance); Thomas J. Stipanowich, *Arbitration: The "New Litigation,"* 2010 U. ILL. L. REV. 1, 58 (citing mediation as an alternative mechanism to resolve disputes); Oliver E. Williamson, *Credible Commitments: Using Hostages to Support Exchange*, 73 AM. ECON. REV. 519, 519–20 (1983) (arguing that hostage taking is "widely used to effect credible commitments").

18. Stipanowich, *supra* note 17, at 58.

19. *See, e.g.*, Nancy A. Welsh & Andrea Kupfer Schneider, *The Thoughtful Integration of Mediation into Bilateral Investment Treaty Arbitration*, 18 HARV. NEGOT. L. REV. 71, 120 (2013) (stating that commercial contracts in the United States are increasingly "provid[ing] for mediation as one step of several in a dispute resolution clause").

20. Ronald J. Gilson, Charles F. Sabel & Robert E. Scott, *Contract and Innovation: The Limited Role of Generalist Courts in the Evolution of Novel Contractual Forms*, 88 N.Y.U. L. REV. 170, 194–96 (2013).

innovation.[21] Thus, many of the critical terms in these contracts are necessarily fatally vague, without an effective remedy, or both, at least from a legal standpoint.[22]

When parties do have disputes over concrete terms that need outside enforcement, they often seek to have those disputes resolved in arbitration rather than in courts.[23] Arbitration can be quicker and cheaper than resorting to courts,[24] and arbitration enables the parties to choose a decision maker with greater expertise in the subject matter of the dispute than is possible with judges.[25] Because of these and other benefits, some commentators have asserted that arbitration is a superior venue in which to resolve intellectual property (IP) disputes.[26]

Given party attitude toward courts and the ready availability of substitute private mechanisms for dispute resolution, one might be surprised to ever see contracting parties insisting on a right to file suits in court. This should be especially true at the drafting stage of a contract because focusing on possible future legal battles can signal to the other party an anticipation of waging such battles. Furthermore, given the effective unenforceability of the essential terms of contracts for innovation, the last thing innovating parties should be focused on is preserving rights to file lawsuits.

Yet a significant and growing number of contracting parties are demanding precisely this right: a right to go to court for the resolution of particular claims and to obtain particular remedies. In empirical studies that we have conducted jointly and separately, we have found parties that incorporate arbitration clauses into their agreements commonly carve out specific rights to proceed in court.[27] Moreover, the vast majority of these

---

21. *Id.* at 194.

22. *Id.* at 199.

23. *E.g.*, Matthew C. Jennejohn, *Contract Adjudication in a Collaborative Economy*, 5 VA. L. & BUS. REV. 173, 197 (2010) ("[Parties to collaborative agreements] resort to arbitration far more often than commercial parties resolving disputes relating to more traditional types of commercial contracts.").

24. Drahozal & Ware, *supra* note 5, at 451.

25. *See, e.g.*, Richard W. Naimark & Stephanie E. Keer, *International Private Commercial Arbitration: Expectations and Perceptions of Attorneys and Business People: A Forced-Rank Analysis*, 30 INT'L BUS. LAW. 203, 203–04 (2002) (identifying arbitrator expertise as a factor in choosing arbitration over other forms of adjudication).

26. *E.g.*, Anne St. Martin & J. Derek Mason, *Arbitration: A Quick and Effective Means for Patent Dispute Resolution*, 46 LES NOUVELLES 269, 278 (2011); Richard H. Sayler, *The Case for Arbitrating Intellectual Property Licensing Disputes*, DISP. RESOL. J., Feb.–Apr. 2005, at 62, 67.

27. Christopher R. Drahozal & Quentin R. Wittrock, *Is There a Flight from Arbitration?*, 37 HOFSTRA L. REV. 71, 113–14 (2008) [hereinafter Drahozal & Wittrock, *Flight from Arbitration*]; Christopher R. Drahozal & Erin O'Hara O'Connor, *Unbundling Procedure*, 66 FLA. L. REV. (forthcoming 2014) (manuscript at 3) (on file with author) [hereinafter Drahozal & O'Hara O'Connor, *Unbundling Procedure*]; Christopher R. Drahozal, *"Unfair" Arbitration Clauses*, 2001 U. ILL. L. REV. 695, 762–64 [hereinafter Drahozal, *"Unfair" Arbitration Clauses*]; Erin O'Hara O'Connor et al., *Customizing Employment Arbitration*, 98 IOWA L. REV. 133, 137 (2012) [hereinafter O'Hara O'Connor et al., *Customizing Employment Arbitration*]; Randall Thomas,

contractual provisions preserve rights to proceed in court in order to protect information and innovation.[28] Specifically, parties are opting to have claims related to their noncompete, confidentiality, and nonsolicitation clauses, as well as their trademark, copyright, and patent rights and trade secrets resolved in courts. Alternatively, parties reserve a right to proceed to court to obtain injunctive relief, the critical remedy for the protection of these rights.[29]

These contracts illustrate the weaknesses of self-help remedies and the relative shortcomings of arbitration in the context of innovation. In fact, when these carve-outs are combined with contracts that do not call for arbitration in the first place, sometimes as much as 80%–90% of contracts studied end up opting for courts rather than arbitration in these contexts, and the choices are made with increasing frequency over time. Notwithstanding private contracts and largely unenforceable terms, parties increasingly demand courts over arbitration for the protection of their intellectual property rights.

This Article explores party use of contract terms that express a preference for courts for the enforcement of rights surrounding innovation. Part II briefly explains the advantages of courts over arbitration in protecting innovation. Part III describes the empirical findings that support our assertion that private parties demand courts for the protection of their innovation. Part IV then explores the implications of our findings for the applicable rules applied by courts. Notwithstanding scholarly assertions that courts are becoming increasingly irrelevant for the resolution of commercial disputes,[30] they likely will continue to play an essential role in supporting party rights to innovation.

II. Courts and Innovation

As demonstrated in Part III, parties who agree to resolve disputes through arbitration commonly carve out a right to use courts instead for the enforcement of rights that protect information and innovation.[31] When we have presented these empirical results to alternative dispute resolution experts, the use of carve-outs from arbitration clauses has surprised many, including arbitration practitioners, who have told us that they would advise their clients against using them. The problem, as described by practitioners, is that carve-outs create a risk that the parties will be stuck simultaneously

---

Erin O'Hara & Kenneth Martin, *Arbitration Clauses in CEO Employment Contracts: An Empirical and Theoretical Analysis*, 63 VAND. L. REV. 959, 999–1000 (2010) [hereinafter Thomas et al., *CEO Employment Contracts*].

28. *See infra* text accompanying notes 74–89.

29. *See infra* Table 1.

30. *See supra* text accompanying notes 1–6.

31. *See infra* text accompanying notes 74–89.

litigating their dispute in both court and arbitration, with potential legal battles over the jurisdictional dividing line between the two.[32] Despite these potential objections, the empirical results suggest that transactional attorneys apparently conclude that this risk of bifurcated claims is offset by the benefits from court resolution of claims related to the protection of information and innovation. What perceived benefit might cause the transactional lawyers to draft carve-outs, especially when the privacy of arbitration can help parties to protect the value of their private information or innovation?

We think that courts can provide several benefits to parties attempting to protect their information and innovation. First, parties evidently perceive courts as having a relative advantage in providing injunctive relief to the parties because in our studies of a variety of contract types, parties commonly expressly reserve a right to obtain such relief in courts.[33] Such property-type protections might well prove essential to the parties' efforts to protect the value of their information and innovation. In many cases, it may be functionally impossible to ascertain the money-damage equivalent of the loss of these items. For example, Gilson, Sabel, and Scott point to such difficulties in their explanation of the relatively unique form of contracts for innovation.[34] In particular, they emphasize the fact that in contracts for innovation, the parties cannot identify *ex ante* the innovative results of their collaboration, let alone value it; as a result, expropriation along the way toward development should pose daunting problems for ascertaining money damages.[35] In other contracts that do not themselves involve the creation of innovation, money damages for the loss of innovative rights can be very difficult, if not impossible, to prove. Indeed, scholars commonly lament the inadequacy of standard monetary damages in the context of information and innovation.[36]

---

32. *See, e.g.*, John M. Townsend, *Drafting Arbitration Clauses: Avoiding the 7 Deadly Sins*, DISP. RESOL. J., Feb.–Apr. 2003, at 28, 31 ("The drafter should be especially cautious about giving in to the temptation to advise the client to agree to arbitrate some types of disputes and go to court for others."); *see also* Richard L. Lionberger, *Arbitration Clauses: Beware the Injunctive Relief Exception*, JD SUPRA L. NEWS (Aug. 21, 2013), http://www.jdsupra.com/post/fileserver.aspx?fName=6b7bd500-dc62-4c2d-b314-afb1d4c42ba0.pdf ("[I]f the parties desire that their disputes be arbitrated, including an exception for actions for specific performance would seem to make little sense.").

33. As discussed in Part IV, in the aftermath of *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006), several courts have imposed more onerous standards on the issuance of injunctions. *See infra* notes 143–44 and accompanying text. This practice could have the effect of dampening preferences for courts in some of our more recent contracts and in future contracts.

34. Gilson et al., *supra* note 20, at 194–95.

35. *Id.*

36. *See, e.g.*, JANE C. GINSBURG ET AL., TRADEMARK AND UNFAIR COMPETITION LAW 917 (4th ed. 2007) (discussing the inadequacy of damages in trademark cases); Andrew S. Friedberg, *Possession as Threat: Temporary Injunctions to Protect Trade Secrets*, ADVOCATE, Winter 2008, at 77, 78 (rehashing the familiar notion that damages often do not fully compensate the trade

In addition, courts are better suited to providing the emergency relief that may be necessary to prevent serious harm to parties' intellectual property rights. Arbitrators typically have the authority to grant provisional relief.[37] But by the time an arbitrator is selected or an arbitral tribunal is constituted, which can easily take forty to ninety days,[38] substantial harm may already have occurred to a party's trademark or significant value from a patent or trade secret may already have been lost.[39] Although arbitration institutions sometimes provide standing panels for emergency relief,[40] parties seem to lack confidence in such arbitral procedures and only rarely use them.[41] Because courts are continually in session and tend to apply predictable expedited hearing procedures,[42] courts also have an advantage over arbitration for matters in which emergency relief may be important.

More generally, for contracts whose terms are largely unenforceable, as is the case for contracts for innovation, tools for ensuring cooperation are essential. Gilson, Sabel, and Scott explain that in these contracts the parties braid together a combination of enforceable and nonenforceable terms, with the enforceable terms protecting the end stage of the relationship.[43] This insight could be stated slightly differently: parties seek protection in the event that things go wrong, and one way for a party to protect itself is to specify a right to the information or innovation.[44] Moreover, a threat to be able to take the innovation can force the other party to cooperate and to renegotiate the terms of the relationship if needed. Many of the technology,

---

secret owner); Kollin L. Rice, *Ohio Law Governing Employee Covenants Not to Compete: A Practitioner's Guide to Current Trends and the Impact of Ohio's Adoption of the Uniform Trade Secrets Act*, 23 OHIO N.U. L. REV. 347, 362 & n.100 (1996) (highlighting the fact that damages in noncompetition-clause cases are "notoriously difficult to prove").

37. *E.g.*, UNIF. ARBITRATION ACT (2000) § 8(b), 7 U.L.A. 34 (2009); COMMERCIAL ARBITRATION RULES & MEDIATION PROCEDURES R-37 (AM. ARBITRATION ASS'N 2013); UNCITRAL MODEL LAW ON INT'L COMMERCIAL ARBITRATION art. 17 (2006).

38. *See, e.g.*, Stephen B. Goldberg, *The Mediation of Grievances Under a Collective Bargaining Contract: An Alternative to Arbitration*, 77 NW. U. L. REV. 270, 276 (1982) (citing an average of forty days for parties to select an arbitrator and up to ninety days for an experienced arbitrator). The time for arbitrator selection can be considerably longer if the parties fail to agree on an arbitrator or a party seeks to challenge a potential arbitrator's impartiality. *See id.*

39. *See* Drahozal & Ware, *supra* note 5, at 456–57 (noting that delays in arbitrator appointment can nullify the benefit of emergency relief).

40. For a discussion of the recent worldwide growth of such panels and procedures, see Jason Fry, *The Emergency Arbitrator—Flawed Fashion or Sensible Solution?*, 7 DISP. RESOL. INT'L 179 (2013).

41. Drahozal & Wittrock, *Flight from Arbitration*, *supra* note 27, at 78–79.

42. *E.g.*, FED. R. CIV. P. 64, 65.

43. *See* Gilson et al., *supra* note 20, at 196–98 (explaining that courts will enforce collaboration agreements by awarding reliance damages for failure to bargain in good faith rather than imposing a particular outcome, in order to encourage cooperation while recognizing that outcomes are unknowable and therefore uncommitted at the time of contracting).

44. Merges speaks of the matter as one where property rights enable the parties to cope effectively with contractual incompleteness. Robert P. Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L.J. 1477, 1486 (2005).

franchise, and joint-venture agreements that we studied contained provisions assigning rights to intellectual property used or developed during the course of the parties' relationship. Although retaining a right to intellectual property can be a form of self-help remedy, in fact a court might be needed to actually enforce the right.

Although these factors can help explain why parties seek injunctive relief in courts, we commonly observed broader carve-out provisions that enabled a party to proceed in court for the resolution of entire claims. In particular, parties expressed a preference for court resolution of claims involving noncompete and nonsolicitation clauses, confidentiality clauses, and intellectual property rights. What causes parties to seek to have these claims resolved in courts? Certainly the preferred remedy—typically injunctive relief—for claimed breaches of noncompete, nonsolicitation, and nondisclosure agreements remains an important part of the explanation.[45] In addition, courts are better able than arbitrators to provide judgments with in rem effect, good against the world rather than just the defendant.[46] The high stakes in at least some of the cases (such as trademark disputes for franchisors)[47] also are important. Parties often prefer to have courts resolve "bet-the-company" cases because the availability of appellate review reduces the risk of aberrational decisions.[48] Moreover, there likely are efficiencies to litigating claims in court once preliminary or permanent injunctions are sought there.[49] Other factors, including party demand for clear rules and legal expertise with relatively little demand for expertise regarding industry norms,[50] and the forecasted evidentiary needs of the parties,[51] also could play a role.

---

45. If parties have not agreed to arbitrate, they are not bound by the arbitrator's decision. *E.g.*, First Options of Chi., Inc. v. Kaplan, 514 U.S. 938, 943 (1995).

46. For a discussion of the value of in rem protections embedded in property rights, see Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773, 780–89 (2001).

47. Drahozal & Wittrock, *Flight from Arbitration*, *supra* note 27, at 79–80.

48. Drahozal & Ware, *supra* note 5, at 455.

49. *See* Drahozal, *"Unfair" Arbitration Clauses*, *supra* note 27, at 763 ("[P]ermitting a party to go to court rather than arbitrate intellectual-property disputes may reduce dispute-resolution costs and increase the accuracy of the dispute-resolution process.").

50. One commonly cited advantage of arbitration over litigation is the ability for the parties to choose arbitrators with industry and other professional expertise. *See, e.g.*, DOUGLAS SHONTZ ET AL., RAND INSTITUTE FOR CIVIL JUSTICE, BUSINESS-TO-BUSINESS ARBITRATION IN THE UNITED STATES: PERCEPTIONS OF CORPORATE COUNSEL 16 (2011), *available at* http://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR781.pdf (reporting that almost 70% of corporate-counsel survey respondents listed the ability to control the arbitrator's qualifications as an attribute that encourages arbitration). In contrast, because U.S. courts operate according to the principles of stare decisis, litigation can provide more predictable, applicable legal precedents. Thomas et al., *CEO Employment Contracts*, *supra* note 27, at 973–74.

51. Parties typically are entitled to less discovery in arbitration than they would obtain in U.S. courts. 3 IAN R. MACNEIL ET AL., FEDERAL ARBITRATION LAW § 34.1, at 34:2 (Supp. 1999).

Courts thus can provide an array of benefits to parties seeking to protect their innovations. Whether those benefits outweigh any associated costs is an empirical question, which the next Part addresses.

III. Party Demand for Courts: Empirical Evidence

We share with Ted Eisenberg and Geoff Miller the view that examining "the actual behavior of contracting parties" can provide important insights into the design of legal rules and dispute resolution systems.[52] In this Part, we look at how parties contract to resolve disputes over the legal protections for their innovations. We examine a range of contract types and a variety of contract provisions, which consistently evidence the private value of courts in protecting innovation.

A. Description of Contracts

To illustrate the breadth of party preference for courts, we used samples of four types of contracts—technology contracts, CEO employment contracts, joint-venture contracts, and franchise contracts. The protection (and sometimes creation) of innovation plays a critical role in each type of contract. For example, one party to the technology contracts often licenses its innovation to the other; the licensor wants to protect its patent rights and trade secrets from misuse by the licensee. As head of the company, a CEO presumably has access to proprietary information and trade secrets of his or her employer. The CEO's employment contract seeks to prevent improper disclosure of that information. In joint-venture agreements, the parties may be seeking to share or develop innovations. If the parties are sharing the innovation, the party with rights to the innovation wants to protect those rights in the contract. If the parties are engaged in innovation through the joint venture, the contract may specify the rights to any innovation that results. Central to the franchise relationship is the licensing of the franchisor's trademark to the franchisee, often along with proprietary business methods. Again, the franchisor seeks to prevent misuse of its innovation in the event of a dispute or after the franchise relationship ends.

The technology contracts were gathered as follows: we collected a sample of 146 technology contracts filed with the Securities and Exchange Commission (SEC) between July 2007 and July 2011 and available on the

52. Theodore Eisenberg & Geoffrey P. Miller, *Damages Versus Specific Performance: Lessons from Commercial Contracts* 2 & n.8 (NYU Ctr. for Law, Econ. & Org., Working Paper No. 13-09, 2013), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2241654; *cf.* William M. Landes & Richard A. Posner, *Adjudication as a Private Good*, 8 J. LEGAL STUD. 235, 251–52 (1979) (examining "the use of arbitration as a benchmark for evaluation of the judicial system").

Electronic Data Gathering, Analysis, and Retrieval System (EDGAR).[53] All of the filing companies were engaged in some sort of information-technology-related business, as identified by the four-digit Standard Industrial Classification code for the company. We gathered those contracts that seemed to represent everyday business contracts for the firm by eliminating contracts related to business formation and finance.[54] We also eliminated duplicate contracts. Most of the contracts (72%) were entered into between 2007 and 2010; the substantial majority (90%) were entered into between 2005 and 2011.[55]

We also examined a sample of 915 CEO employment contracts from 1995 to 2005 collected from EDGAR by Randall Thomas, Ken Martin, and Erin O'Hara O'Connor,[56] and a small sample of joint-venture agreements collected from EDGAR in 2008.[57] The majority of the joint-venture agreements (59.6%—31 of 52) involved joint ventures with at least one non-U.S. party; the others were purely domestic U.S. joint ventures.[58]

Finally, we used a sample of 67 franchise agreements from leading franchisors, obtained from the website of the Minnesota Department of Commerce.[59] The franchise agreements were included as exhibits to the franchisors' 2013 Franchise Disclosure Documents.[60] The sample itself traces from 1999, when available franchise contracts were obtained from franchisors then operating in Minnesota that were among the top 100 franchisors.[61] Originally, 75 franchisors were in the sample; due to attrition (franchisors going out of business, ceasing to do business in Minnesota, and the like) the sample is now down to 67 franchisors.

---

53. For a more detailed description of the methodology for collecting the contracts, see Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (manuscript at 22).

54. The types of contracts were licensing agreements, service agreements, master service agreements, and the like, from the following industries: radiotelephone communications (such as wireless operators); telephone communications; data-processing services; computer-programming services; computer-integrated-systems design; computer-processing and data services; and other business services. *Id.*

55. *Id.* (manuscript at 22).

56. For more details on the methodology for collecting these contracts, see Thomas et al., *CEO Employment Contracts*, *supra* note 27, at 977–82.

57. Drahozal & Ware, *supra* note 5, at 465 & n.143.

58. *Id.* at 466 & tbl.4.

59. *Welcome to CARDS - Commerce Actions and Regulatory Documents Search*, MINN. DEPARTMENT COM., https://www.cards.commerce.state.mn.us/CARDS/.

60. Peter B. Rutledge & Christopher R. Drahozal, *"Sticky" Arbitration Clauses?: The Use of Arbitration Clauses After* Concepcion *and* Amex, 67 VAND. L. REV. (forthcoming 2014) (manuscript at 27), *available at* http://ssrn.com/abstract=2306268.

61. Drahozal, *"Unfair" Arbitration Clauses*, *supra* note 27, at 722–24 (describing the original sample); *see also* Drahozal & Wittrock, *Flight from Arbitration*, *supra* note 27, at 90–91 (using the same Minnesota franchise-agreement sample); Rutledge & Drahozal, *supra* note 60 (manuscript at 27) (same).

For each of the types of contracts, we coded for whether the contract included an arbitration clause. If the contract included an arbitration clause, we then coded for the presence of various types of carve-outs—claims for injunctive relief, claims for provisional relief, breach of a covenant not to compete, breach of a confidentiality agreement, and breach of a nonsolicitation agreement—and for trademark or other intellectual property disputes.

For technology and franchise contracts, we also coded for the presence of a specific performance clause—that is, a clause by which the parties consent that specific performance or injunctive relief is an appropriate remedy.[62] Minnesota (the source of our franchise agreements) prohibits the use of specific performance clauses in franchise agreements.[63] However, most franchisors address such state-specific limitations through state-specific addenda to their franchise agreements, so we do not expect the Minnesota prohibition to affect our results significantly.[64] For the technology contracts, we identified whether the contracts discussed patent ownership so that we could isolate the effects of patent protection on party preference for courts and specific performance agreements. We also coded for the presence of a choice-of-court clause, either in the contract generally or in connection with a carve-out.

B. Party Demand for Courts in Contract Provisions

Empirically, we are interested in whether parties in their contracts prefer arbitration or courts when seeking to protect their innovations, through patent, trademark, or trade secret law;[65] and through various contractual provisions that enable the parties to better protect these rights.

---

62. We coded as specific performance clauses those contract provisions by which the parties agreed that injunctive relief was appropriate for particular claims or that specified that certain behavior "would" or "will" result in irreparable harm. We did not code as specific performance clauses those provisions stating that certain behavior "might" result in irreparable harm or provisions in which the parties agreed that no bond or only a limited bond would be required when a party seeks injunctive relief. Likewise, we did not treat as a specific performance clause a provision stating that nothing in the contract should be construed as eliminating the possibility of injunctive relief. Injunctive relief remains available under that type of provision, but under the usual standards for injunctive relief or specific performance in court. It does not exhibit a preference for specific performance over any other remedy.

63. *Registration Checklist*, MINN. DEPARTMENT COM., https://mn.gov/commerce/images/Franchise_Registration_Checklist.pdf ("The following Minnesota-specific language must be included in an exhibit attached to the Franchise Disclosure Document and also to the franchise agreements: . . . The franchisee cannot consent to the franchisor obtaining injunctive relief. The franchisor may seek injunctive relief. See Minn. Rules 2860.4400J.") (emphasis omitted).

64. Almost all of the franchisors in our sample sell franchises nationally.

65. Copyright law apparently does not play an important role in protecting innovation in most of the types of contracts we studied. The technology contracts did address copyright issues at times, but only in a small sample of agreements, and often in conjunction with other intellectual property issues. And patent, trademark, and trade secret law may protect innovation to varying degrees, depending on the type of contract.

For each contract type, around half (or more) of the agreements studied included arbitration clauses—51.4% of technology contracts, 51.9% of CEO employment contracts, 42.9% of domestic joint-venture agreements, 71.0% of international joint-venture agreements, and 46.3% of franchise contracts.[66] The CEO employment contracts studied also showed a statistically significant time trend for arbitration: more parties are opting for arbitration over time.[67] One might infer from these figures that parties are divided almost evenly in their preferences between court and arbitration, or may even prefer arbitration in some types of contracts, and that arbitration's popularity is growing. A closer examination of the contracts, however, indicates otherwise, at least for some disputes: parties exhibit a strong preference for courts to protect their innovation in all contracts involving U.S. parties, as shown by their use of carve-outs from arbitration clauses, choice-of-court clauses, and specific performance clauses.[68] However, our contracts also indicate that the robustness of these results depends on party perceptions that the courts are equipped and willing to effectively enforce their rights. This subpart describes our results.

1. Carve-outs from Arbitration Clauses.—Carve-outs are provisions in arbitration clauses that exempt certain disputes, claims, or remedies from coverage under the arbitration clause.[69] They have the effect of enabling the parties to seek court assistance in resolving those matters.[70] Carve-outs permit parties to fine-tune their dispute resolution process by having different bundles of procedures (court or arbitral) apply to different types of disputes or remedies.[71] By separating out the parties' potential disputes, the parties can quickly obtain more effective procedural customization than would be possible if the same dispute-resolution process applied to all potential disputes.[72] When a contract contains a carve-out from an

66. Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (manuscript at 20, 22, 27, 29 & tbl.9). The technology contract numbers vary slightly here from those provided in Drahozal and O'Hara O'Connor because more technology contracts were included in the sample used for this Article.

67. Thomas et al., *CEO Employment Contracts*, *supra* note 27, at 981.

68. The empirical findings described below on the use of carve-outs and noncompete clauses are largely (although not exclusively) derived from our prior work. *See supra* note 27. The findings on choice-of-court clauses and specific performance clauses are original in this Article.

69. Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (manuscript at 3).

70. *Id.*

71. *Id.*

72. The available evidence suggests that contract provisions customizing the default procedures in court or arbitration are rare in contracts between sophisticated parties. *See* David A. Hoffman, *Whither Bespoke Procedure?*, 2014 U. ILL. L. REV. 389, 394 ("[E]ven in circumstances where we would expect them to, parties almost never use contract terms to vary their post-dispute procedural contests."); O'Hara O'Connor et al., *Customizing Employment Arbitration*, *supra* note 27, at 136–37 (finding that parties to CEO employment contracts rarely customized arbitration provisions).

arbitration clause, the parties are expressing an explicit preference for court resolution of the type of dispute being carved out from arbitration.[73]

Carve-outs were common in all of the types of contracts we studied. Consider the technology contracts, which were all business-to-business contracts. Overall, 28.0% of the arbitration clauses studied contained carve-outs. Although this is a substantial number, isolating the contracts entered into by one or more U.S. companies produced more significant results. For contracts involving one or more U.S. companies, 59.4% of the arbitration clauses contained carve-outs. In contrast, contracts between two non-U.S. parties—which in our sample mostly included contracts between two Chinese firms—contained higher rates of arbitration clauses (65.1% of contracts) and almost no carve-outs from arbitration (3.6% of arbitration clauses). For contracts between two Chinese companies, more than 75% of the contracts contained arbitration clauses, and none of these contracts contained any carve-outs.

About half of the CEO employment contracts with arbitration clauses (48.2%) contained carve-outs. In addition, carve-outs have become increasingly common over time, with more recent contracts containing, on average, more carve-outs than the older contracts.[74] These figures are instructive because carve-outs were prevalent even for firms that were not primarily engaged in innovation. Whatever the proportion of firm business dedicated to innovation, the firm commonly sought to protect its value by preserving a right to proceed in court. CEO employment contracts tend to be heavily negotiated agreements with lawyers representing the parties on both sides.[75] This fact suggests that the protections are valuable enough to the firm that it is willing to actively negotiate to keep them.

The joint-venture agreements exhibited a similar contrast. Just over a quarter of the joint-venture agreements (27.6%—8 of 29) contained carve-outs. Within the sample, however, 20.0% of international joint ventures and 44.4% of U.S. joint ventures with arbitration clauses contained carve-outs. Finally, all of the franchise agreements we studied used some form of carve-out when the contract contained an arbitration clause.[76] The franchise agreements are all domestic (involving only U.S. parties) and are form contracts drafted by the franchisor. In virtually all cases, the carve-outs operate in favor of the franchisor.

The most common carve-outs varied depending on the type of contract, but in every case were closely linked to the need to protect innovation. In technology contracts, the most common carve-out was for injunctive relief claims, which appeared in 25.3% of the contracts with

---

73. Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (manuscript at 16).
74. O'Hara O'Connor et al., *Customizing Employment Arbitration*, *supra* note 27, at 175.
75. Thomas et al., *CEO Employment Contracts*, *supra* note 27, at 964.
76. *See infra* Tables 1, 2, 3 & 4.

arbitration clauses, as shown in Table 1. The second most common was for claims based on a confidentiality clause in the contract, used in 13.3% of the contracts with arbitration clauses. In CEO employment contracts, as shown in Table 2, 35.7% of the contracts with arbitration clauses carved out claims based on a contractual confidentiality obligation, 31.0% carved out noncompete claims, and 29.5% carved out nonsolicitation claims. As shown in Table 3, in the domestic joint-venture agreements, a third of arbitration clauses (33.3%) carved out claims for provisional relief, and one clause carved out injunctive relief claims; 10.0% of arbitration clauses in international joint-venture contracts carved out injunctive relief claims. The use of carve-outs was highest in franchise contracts, as shown in Table 4, presumably at least in part because franchise contracts are not individually negotiated.[77] Over 87% of the franchise agreements with arbitration clauses carved out injunctive relief claims, 71.0% carved out trademark claims, 35.5% carved out nonsolicitation claims, and 41.9% carved out noncompete claims.

Table 1: Carve-Outs in Technology Contracts[78]

Type of Carve-Out	Number of Contracts with Carve-Outs	Percentage of Arbitration Clauses with Carve-Outs
Any carve-out	21	28.0%
Injunctive relief claims	19	25.3%
Confidentiality-clause claims	10	13.3%
Noncompete-clause claims	1	1.3%
Nonsolicitation-clause claims	1	1.3%

77. *See* Drahozal, *"Unfair" Arbitration Clauses*, *supra* note 27, at 723 (explaining that individually negotiated changes to franchise agreements would need to be filed with the Minnesota Department of Commerce).

78. Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (mansuscript at 23 & tbl.2).

Table 2: Carve-Outs in CEO Employment Contracts[79]

Type of Carve-Out	Number of Contracts with Carve-Outs	Percentage of Arbitration Clauses with Carve-Outs
Any carve-out	224	48.2%
Noncompete-clause claims	144	31.0%
Confidentiality-clause claims	166	35.7%
Client-nonsolicitation-clause claims	99	21.3%
Employee-nonsolicitation-clause claims	137	29.5%
Nondisparagement-clause claims	30	6.5%
Preliminary relief carve-out	56	12.0%

Table 3: Carve-Outs in Domestic and International Joint-Venture Agreements[80]

Type of Carve-Out	Number of Contracts with Carve-Outs	Percentage of Arbitration Clauses with Carve-Outs
Domestic Agreements:		
Any carve-out	4	44.4%
Provisional relief claims	3	33.3%
Injunctive relief claims	1	11.1%
International Agreements:		
Any carve-out	4	20.0%
Provisional relief claims	1	5.0%
Injunctive relief claims	2	10.0%
IP, trade secrets, and corporate opportunities	1	5.0%

79. *Id.* (manuscript at 20 & tbl.1). To be clear, the study of 915 contracts yielded 475 contracts indicating that the parties would resolve at least some of their disputes with arbitration. Only 465 of these contracts actually contained the arbitration clause, however. The percentages in Table 2 above all use the 465 contracts studied as the relevant denominator.

80. *Id.* (manuscript at 27–28 & tbl.7).

Table 4: Carve-Outs in Franchise Agreements

Type of Carve-Out	Number of Contracts with Carve-Outs	Percentage of Arbitration Clauses with Carve-Outs
Any carve-out	31	100.0%
Injunctive relief claims	27	87.1%
Claims to protect trademark	22	71.0%
Noncompete clause claim	11	35.5%
Confidentiality clause claims	13	41.9%

Full appreciation of party preferences for courts over arbitration requires combining the data on carve-outs with the data on the overall use of arbitration clauses.[81] For example, 51.4% of technology contracts used arbitration clauses; 48.6% did not. Of the 51.4% with arbitration clauses, 25.3% carved out injunctive relief claims from arbitration. Combining those data, 61.6% of technology contracts provided for injunctive relief claims to be resolved in court.[82] If we consider just cross-border contracts, a similar calculation shows that 85.7% of the agreements call for court resolution of the claims.[83] For CEO employment contracts, 66.6% provided for confidentiality-clause claims to be resolved in court,[84] and 64.2% provided for noncompete-clause claims to be decided in court.[85] For domestic joint ventures, 71.4% provided for claims for provisional relief to be resolved in court,[86] but only 36.1% of international joint ventures provided for injunctive relief claims to be resolved in court.[87] For franchise agreements, the numbers were more dramatic: when the data on arbitration-clause use and carve-outs are combined, 94.0% of franchise agreements provided for injunctive relief claims to be resolved in court,[88] and 86.6% of franchise agreements provided for trademark claims to be resolved in court.[89]

81. *See supra* note 66 and accompanying text.

82. 48.6% + (51.4% * 25.3%) = 61.6%.

83. 57.1% + (42.9% * 66.7%) = 85.7%. For additional data on cross-border contracts, see Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27, at 24 tbl.5.

84. 48.1% + (51.9% * 35.7%) = 66.6%.

85. 48.1% + (51.9% * 31.0%) = 64.2%.

86. 57.1% + (42.9% * 33.3%) = 71.4%.

87. 29.0% + (71.0% * 10.0%) = 36.1%.

88. 53.7% + (46.3% * 87.1%) = 94.0%.

89. 53.7% + (46.3% * 71.0%) = 86.6%.

Not considering carve-outs can substantially understate the extent of party preferences for courts.[90] For example, Matthew Jennejohn reports that 49.7% of collaboration agreements he collected from EDGAR and 67.6% of collaboration agreements available on www.onecle.com included arbitration clauses.[91] Based on this (relatively) high frequency of arbitration clauses, he concludes that "collaborators shun litigation," arguing that "contemporary contract adjudication is fundamentally inappropriate for fixing dysfunctional learning systems."[92] We have no ability to replicate the sample Jennejohn collected from EDGAR, but have examined the sample of collaboration agreements currently available on www.onecle.com. Of the available agreements dated 2004–2008 (the most recent agreements available), just under half (48.0%—12 of 25) included arbitration clauses. But half of the collaboration agreements with arbitration clauses (including three-quarters of domestic agreements) used some sort of carve-out, most commonly for provisional relief.[93] So focusing solely on arbitration clauses to the exclusion of carve-outs can substantially understate the extent to which parties contract for courts to assist them in resolving their disputes.

2. Choice-of-Court Clauses.—Why do parties so often prefer courts to arbitration for the protection of their innovation? Recall that our instinct was that property-type protections are essential for the effective protection of information and innovation, and that courts can more effectively provide these remedies than can arbitrators.[94] Can the contracts provide us with any evidence of this motivation? In an effort to seek out this evidence, we studied some of the contracts for the presence of choice-of-court and specific performance clauses. We treat the choice-of-court clauses in this subpart and the specific performance clauses in the next subpart.

If the parties seek courts in order to provide property-type protections, then they should be less inclined to specify an exclusive venue for the resolution of their disputes. This reasoning requires some defense because, at first glance, specifying a particular court should serve the benefit of enabling the parties to steer away from unreliable courts (i.e., Chinese and California courts as described in the last subpart)[95] and toward more reliable

90. In addition to the example that follows, see also *infra* text accompanying notes 100–04 (discussing Eisenberg & Miller's study of specific performance clauses).

91. Jennejohn, *supra* note 23, at 198, 200.

92. *Id.* at 201.

93. We are dealing with a different issue in this Article than the one discussed by Jennejohn, and we certainly recognize that arbitration can play an important role in resolving some sorts of disputes among collaborators. But like the other types of contracts we studied, collaboration agreements also appear to provide for an important role for courts in protecting innovation.

94. *See supra* text accompanying notes 34–51.

95. *See infra* text accompanying notes 109–18.

ones. Although this is true, a party seeking to prevent another party from expropriating information or innovation likely would not wish to confine itself to a single jurisdiction. Rather, that party presumably would want the freedom to seek injunctive relief in any jurisdiction where the other party is attempting to benefit from use of the information or innovation, at least where the location of such expropriations cannot be reliably predicted. Stronger courts are better than unreliable courts, to be sure, but a party seeking injunctive relief nevertheless could prefer to choose its jurisdiction after the facts of expropriation have been revealed.

If this reasoning is correct, it has implications for the choice-of-court clauses one might see in our contracts. Specifically, we compared the use of the clauses in the two settings where the parties contemplate using courts for the resolution of at least some of their disputes: (1) contracts without arbitration clauses and (2) contracts containing arbitration clauses with carve-outs. For the latter contracts, the parties have explicitly contemplated a need for courts to protect their information and innovation. For the former contracts, the parties' motivation presumably is much less clear. Parties could choose not to incorporate an arbitration clause for many reasons, including a failure or reluctance to bargain for dispute resolution, or a distrust of arbitration for any number of reasons. If parties seek courts in order to obtain property-type protections for their innovation, then choice-of-court clauses should appear less often in contracts that explicitly carve out rights to go to court for such claims. Conversely, they should appear relatively more often in contracts with no arbitration clause because those contracting parties might or might not be motivated by concerns for protection of innovation.

Using this reasoning, we returned to the technology contracts to study choice-of-court clauses, and we found a dramatic difference in the rates with which contracts incorporated choice-of-court clauses. For the 21 contracts with arbitration clauses and carve-outs, only 2 (9.5%) included a choice-of-court clause limiting a party's right to obtain relief in a particular court or courts.[96] In contrast, 39 of the 71 (54.9%) contracts without an arbitration clause contained a choice-of-court provision. These differential numbers cannot prove our hypothesis, but they certainly support it. Moreover, several of the 37 choice-of-court clauses found in the contracts without arbitration clauses gave the parties a clear or possible right to proceed to any court to obtain injunctive relief. These provisions serve as carve-outs of the choice-of-court clauses, presumably to ensure that the

96. Actually, a third contract contained a type of choice-of-court clause, but we chose not to count this contract. The contracting parties were both U.S. companies, and the contract gave the parties the right to proceed in any U.S. court. We viewed this clause as permissive rather than restrictive, given the circumstances.

parties can more effectively obtain property-type relief for the protection of their innovation.

Moreover, virtually all of the contracts designating a U.S. forum specify that the parties can proceed in state or federal court in a particular state or district. Presumably, the choice enables the parties to obtain more effective IP protections in federal courts (i.e., for patent, trademark, and copyright claims) while preserving a right to proceed in state court for the resolution of other types of claims.

3. Specific Performance Clauses.—Another indicator of the importance to parties of property-type protections is the presence of contract clauses modifying the usual rules for awarding injunctive relief or specific performance. In particular, contract clauses will sometimes state that the parties acknowledge or agree that in the event of a breach of the contract provision, the nonbreaching party is likely to suffer irreparable injury and that injunctive relief is therefore appropriate.[97] The clauses are an effort to ensure that courts will be willing to award injunctive relief without the usual extensive inquiry into whether the legal standard is satisfied.[98] A recent paper by Ted Eisenberg and Geoff Miller examines the use of "specific performance clauses" to evaluate party preferences for a specific performance remedy over damages.[99] Our focus here is narrower: we are interested in contract provisions that help explain why parties prefer courts to arbitration for injunctive relief remedies. Nevertheless, our findings do have possible implications for some of Eisenberg and Miller's findings.

We looked for the presence of specific performance clauses in the technology contracts. Although we found several such provisions, their presence was almost exclusively a U.S. phenomenon. When at least one of the parties to the contract was located in the United States, 53.6% (45 of 84) of the contracts included a specific performance clause. When neither party was located in the United States, only 1.6% (1 of 62) of the contracts included a specific performance clause. Of the 46 contracts with specific performance clauses, 27 (58.7%) provided that all disputes will be resolved in court (no arbitration clause), 14 (30.4%) included an arbitration clause with a carve-out, and only 5 (10.9%) provided for arbitration with no carve-out. By comparison, 49 of the 100 (49.0%) contracts without a specific performance clause included an arbitration clause with no carve-out. Moreover, specific performance clauses were more common in contracts that contained arbitration clauses with carve-outs than in contracts with no arbitration clause. Twenty-seven of the 71 contracts with no arbitration clause (38.0%) contained specific performance clauses, whereas 14 of the

97. Eisenberg & Miller, *supra* note 52, at 3–5.

98. *Id.* at 3–4.

99. *Id.* at 2–6.

21 contracts with carve-outs (66.7%) contained specific performance clauses. Given that the contracts contemplating dispute resolution in court are significantly more likely to contain specific performance clauses, the technology contracts lend further support to the hypothesis that U.S. parties desire courts in order to seek property-type protections.

Of the franchise agreements we studied, 59.7% (40 of 67) included a specific performance clause. Specific performance clauses were more common in franchise agreements without arbitration clauses (66.7%—24 of 36) than franchise agreements with arbitration clauses (51.6%—16 of 31). However, all but two of the franchise agreements with arbitration clauses and specific performance clauses (87.5%—14 of 16) also used injunctive relief carve-outs. And the two remaining franchise agreements had carve-outs for disputes over trademarks (in one case) and disputes over trademarks and confidential information (in the other), which were the very types of disputes addressed by the specific performance clause. All told, all of the forty franchise agreements with specific performance clauses either had no arbitration clause or an arbitration clause with a carve-out. In all of the agreements, it would be courts rather than arbitrators that would rule on the request for injunctive relief.

Moreover, the specific performance clauses in the franchise agreements studied consistently linked the need for injunctive relief to protections for trademarks, trade secrets, and confidential information. Here are a few examples:

- AAMCO: "in view of the nature of the System, the business of AAMCO, and the strength of the AAMCO names and marks."
- Cost Cutters: "The FRANCHISEE, the FRANCHISEE'S shareholders, partners or members and the Personal Guarantors agree that the provisions of this Article are necessary to protect the legitimate business interests of COST CUTTERS and COST CUTTERS' franchisees, including, without limitation, preventing damage to and/or loss of goodwill associated with the Marks, preventing the unauthorized dissemination of marketing, promotional and other confidential information to competitors of COST CUTTERS and COST CUTTERS' franchisees, protection of COST CUTTERS' trade secrets and the integrity of COST CUTTERS' Business System and preventing duplication of the Business System."
- Denny's: "the unique value and secondary meaning attached to the Denny's System, the Denny's Marks, the Confidential Information and the associated standards of operation and trade practices."

- Dunkin' Donuts: "the importance of your compliance with Standards to protect our System, other franchisees, and the goodwill enjoyed by our Proprietary Marks."
- KFC: "as a KFC franchisee, he will have access to KFC's trade secrets and confidential practices and therefore, is in a unique position to use the special knowledge he will have gained while a franchisee."
- Quizno's: "the Marks and the Licensed Methods have valuable goodwill attached to them, that their protection and maintenance are essential to Franchisor and its affiliates."

The specific performance clauses themselves thus provide some indication that injunctive relief is important for protecting innovation.

Our empirical results stand in sharp contrast to those of Eisenberg and Miller, who found that specific performance clauses were more common in contracts with arbitration clauses than ones without.[100] There are several possible explanations for our differing findings. First, our studies use different contracts. The technology contracts would be included in the Eisenberg and Miller sample, but the franchise agreements would not. And the Eisenberg and Miller sample included a number of other types of contracts we do not study here.[101] Second, and importantly, Eisenberg and Miller do not distinguish between arbitration clauses with injunctive relief carve-outs and arbitration clauses without such carve-outs.[102] Such carve-outs indicate that the specific performance clauses are directed to courts rather than arbitrators, as Eisenberg and Miller presume.[103] Third, Eisenberg and Miller appear to employ a significantly broader definition of specific performance clause than we use here. They employ a relatively simple word search that will capture more than just specific performance clauses, whereas we had few enough contracts that we could read each one to be certain that it contained such a clause.[104] Overall, our findings here do

---

100. *Id.* at 38 tbl.7.

101. *Compare id.* at 22 tbl.1 (sampling twelve types of contracts, including employment, merger, and underwriting contracts), *with* discussion *supra* subpart III(A) (sampling technology contracts, CEO employment contracts, joint-venture contracts, and franchise contracts).

102. *See id.* at 29–30.

103. Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (manuscript at 40).

104. As explained above, we do not include injunctive relief carve-outs, no-bond requirements, or no-waiver-of-injunctive-relief provisions as specific performance clauses. *See supra* note 62. By comparison, it appears that Eisenberg and Miller may include some of those provisions. They describe their coding of specific performance clauses as follows:

> The key outcome variable in this study is the contracts' treatment of remedies, with particular focus on the remedy commonly referred to as specific performance. To determine whether a contract included specific performance as a remedy, we used terms associated with departures from the default damages rule. We searched the retrieved SEC documents for the following terms: "specific!, injunc!, irre! (to capture Irreparable and Irrevocable), adequate, equit!, remedies, relief." The "!" symbol in

not fundamentally challenge the central finding of Eisenberg and Miller (that parties often contract for specific performance), but they do raise questions about Eisenberg and Miller's subsidiary finding that such provisions are more common in contracts with arbitration clauses.

4. Patent Protection Versus Other Protection of Innovation.—The different contracts that we studied protect innovation through different bodies of intellectual property. The franchise agreements seem primarily focused on trademark protection, while the CEO employment contracts focus more on trade secret protection. We wanted to get a sense of how contract provisions might differ if the parties were focused on patent protection rather than other types of protection. Patent disputes are not arbitrable in all countries,[105] and scholars debate whether it makes sense for such cases to be handled in arbitration.[106] Moreover, one might think that patent cases are more likely to end up in public court than trademark and trade secret cases for several reasons, including that parties to patent disputes can file suit in specialized courts with expert judges,[107] and that the intellectual property at issue is already in the public domain, so the confidentiality of arbitration is less necessary.[108]

To get a sense of how parties treat patent issues, we returned to the technology contracts. Not all of these contracts contemplate the protection of innovation, let alone patent issues, however. We isolated those contracts that discussed patent-ownership issues as a measure of those parties who were particularly focused on patent issues when negotiating the contract. In the seventy-seven contracts discussing patent ownership between the parties, twenty-four (31.2%) specified that all disputes were to be resolved in arbitration, thirty-four (44.2%) that all disputes were to be resolved in court, and nineteen (24.7%) included an arbitration clause with a carve-out

---

> some of the search terms is the commonly used symbol to include any combination of characters that follow the root term. For example, "injunc!" would include documents that contain the words "injunction" or "injunctive". Documents that satisfied the search term were then read to ascertain whether they in fact addressed specific performance.

Eisenberg & Miller, *supra* note 52, at 23. They recognize the possibility that their search terms are underinclusive and add some contract provisions that have a similar effect as a specific performance clause. *Id.* at 23–24. But they do not discuss the possibility that their search terms are overinclusive.

105. M.A. Smith et al., *Arbitration of Patent Infringement and Validity Issues Worldwide*, 19 HARV. J.L. & TECH. 299, 333, 345 (2006) (listing France and China as examples of countries where patent disputes are non-arbitrable).

106. *See id.* at 306–13 (addressing legal and policy arguments against arbitration proceedings for patent disputes).

107. *See infra* text accompanying notes 132–37.

108. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 294–95 (2003) (explaining that patent law requires public disclosure of the relevant invention).

for some disputes. By comparison, in the sixty-nine technology contracts that did not discuss patent ownership issues, thirty (43.5%) specified that all disputes were to be resolved in arbitration, thirty-seven (53.6%) that all disputes were to be resolved in court, and two (2.9%) included an arbitration clause with a carve-out for some disputes. As these figures indicate, contracts that expressly contemplate patent matters tend to steer parties away from arbitration and toward courts, at least to some extent. The differences are not dramatic, however, which further reinforces our observations from other contracts that parties seek courts for innovation protections more generally. Interestingly, however, the parties were much more likely to incorporate carve-outs from arbitration in contracts discussing patent rights. Perhaps the parties see patent matters as significantly more unique and separable than matters that involve other forms of intellectual property. This makes intuitive sense, given that trade secrets are protected through a variety of common contract terms, including noncompete, confidentiality, nonsolicitation, and benefits/severance clauses.

Parties contemplating the need for patent protections might also seek courts due to the special value of injunctive relief for patent owners. In support of this hypothesis, technology contracts that discuss patent ownership issues are much more likely to include specific performance clauses than are the contracts that do not discuss patent-ownership rights. Just over half (51.9%—40 of 77) of contracts discussing patent rights include specific performance clauses, while less than ten percent (8.7%—6 of 69) of contracts that do not discuss patent ownership include such clauses.

5. Desirability of Courts.—Our contracts provide evidence that party preference for courts is critically dependent on the parties believing that courts can, and will, provide them with the protections they seek. If parties do not trust the courts to provide them with effective protections, then they will be more inclined to opt for arbitration and less inclined to carve out claims for court resolution. This pattern is present in the technology agreements entered into between two companies located in China. Of the forty-nine contracts involving two companies formed in China, thirty-eight (77.6%), of them contain an arbitration clause, and none of the arbitration clauses contain carve-outs of any kind. Thus, at most, 22.4% of contracting parties are comfortable proceeding to court for the resolution of their disputes, a much lower number than we saw for other contracts. Although China recently has invested significant resources in IP courts, they are not

yet thought to be effective for protecting IP rights.[109] This relative distrust of the local courts shows up in the parties' contracts.

The CEO employment contracts also are illustrative. Firms in our sample were located across the United States, with 112 of the contracts in our sample primarily located in California, according to the Compustat database.[110] California courts will not enforce noncompete provisions in employment contracts.[111] Given that noncompetition clauses were commonly found in the CEO employment contracts, one might expect to see a difference in California firm preferences for arbitration relative to firms located in other states. In fact, 67% of the CEO employment contracts with firms primarily located in California contained arbitration clauses, a much higher rate than that found for the other firms (49%), with the differences being statistically significant.[112] Statistically significant differences showed up in the carve-out rates too. Very few firms primarily located in California signed contracts carving out noncompete-clause claims for court resolution.[113] That result seems to follow straightforwardly from the fact that California firms' noncompete-clause claims can only be enforced in arbitration.[114] Interestingly, however, firms primarily located in California were also statistically less likely to carve out other types of claims for court resolution.[115] This difference might well be due to the fact that the California courts will strike down arbitration clauses in their entirety in employment contracts if it appears that the employer is carving out rights to proceed in court while forcing the employee to bring claims in arbitration.[116] This precedent has even been applied both to cases where

109. *See* Drahozal & O'Hara O'Connor, *Unbundling Procedure*, *supra* note 27 (manuscript at 42) (discussing the difficulties faced by specialized intellectual property courts in China).

110. O'Hara O'Connor et al., *Customizing Employment Arbitration*, *supra* note 27, at 161.

111. Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Convenants Not to Compete*, 74 N.Y.U. L. REV. 575, 607–08 (1999).

112. O'Hara O'Connor et al., *Customizing Employment Arbitration*, *supra* note 27, at 161–62.

113. *Id.* at 170 (non-California firms carved the noncompete-clause claims out in 38% of the arbitration clauses; California firms carved them out in only 5% of the clauses).

114. *See supra* text accompanying note 111.

115. O'Hara O'Connor et al., *Customizing Employment Arbitration*, *supra* note 27, at 168 tbl.6.

116. For examples of cases in which the entirety of an arbitration clause was struck down by a California court, see Armendariz v. Found. Health Psychcare Servs., Inc., 6 P.3d 669, 674 (Cal. 2000); Fitz v. NCR Corp., 13 Cal. Rptr. 3d 88, 107 (Cal. Ct. App. 2004); Martinez v. Master Prot. Corp., 12 Cal. Rptr. 3d 663, 673 (Cal. Ct. App. 2004); Abramson v. Juniper Networks, Inc., 9 Cal. Rptr. 3d 422, 444 (Cal. Ct. App. 2004); O'Hare v. Mun. Res. Consultants, 132 Cal. Rptr. 2d 116, 125 (Cal. Ct. App. 2003); Mercuro v. Superior Court, 116 Cal. Rptr. 2d 671, 684 (Cal. Ct. App. 2002).

employers carve out rights to innovation[117] and to cases involving corporate officers and executives.[118]

The California firm CEO employment agreements and the Chinese firm technology agreements both provide evidence that party preference for courts is contingent on their subjective belief that the courts can, and will, provide them with the protections they seek. If firms opt for courts in general but turn to arbitration when court enforcement is unreliable, it is possible that the court precedent is having the effect of destroying value for the contracting parties. Such value destruction is only justified if the state can identify a greater social benefit to its obstructive stance. Overall, it suggests that states should very carefully consider how local laws influence party efforts to protect their information and innovation.

C. *Summary*

To summarize, empirical studies of contracting for dispute resolution have overlooked the fact that parties seeking to protect their rights to innovation appear to have a strong preference for courts rather than arbitration. In a wide variety of commercial environments where parties seek to use a number of different tools for protecting innovation (such as patents, trademarks, and trade secrets), a preference for courts appears in the contracts. One must be careful not to generalize from our contract studies too far. After all, we study high-value contracts entered into by mostly publicly traded firms, which may give some bias to our results.[119] Nevertheless, across these several environments studied, the preference for courts is clear. Often this preference takes the form of carve-outs from arbitration clauses, a phenomenon receiving scant attention so far in the literature. When the parties focus on carve-outs, they are reluctant to specify the courts where such relief can be obtained, presumably so that the protections can be obtained anywhere. In contrast to prior study,[120] we find that specific performance clauses are more prevalent when parties contemplate court protection of innovation, providing further evidence that a primary benefit of courts is more effective injunctive relief. Finally, in the technology agreements, parties contemplating a need for patent

---

117. For examples of cases in which the entirety of an arbitration clause was struck down by a California court despite the employer carving out rights to innovation, see *supra* note 116.

118. *See, e.g.*, Trivedi v. Curexo Tech. Corp., 116 Cal. Rptr. 3d 804, 808 (Cal. Ct. App. 2010) (relating to an arbitration provision in an employment contract between a corporation and its president and chief executive officer); Kalmbach v. Sportsmobile W., Inc., No. F054648, 2008 WL 4988663, at *1, *9 (Cal. Ct. App. Nov. 25, 2008) (relating to an arbitration agreement in the contract of a vice president of operations); Stirlen v. Supercuts, Inc., 60 Cal. Rptr. 2d 138, 148 (Cal. Ct. App. 1997) (relating to an arbitration provision in an employment contract between a corporation and chief financial officer).

119. *Cf.* Drahozal & Ware, *supra* note 5, at 457–67 (detailing how Eisenberg and Miller's sample is biased "in favor of contracts unlikely to include arbitration clauses").

120. *See supra* notes 100–04 and accompanying text.

protections were even more likely to express a preference for courts over arbitration, were more likely to use carve-outs to preserve such rights, and were significantly more likely to incorporate specific performance clauses than were other parties. Our contracts indicate that party preference for courts is highly contingent, however, turning on party perceptions of the ability and willingness of the courts to provide effective protection of their innovations.

IV. Implications for Court Rules

Whatever might be true regarding the relevance of courts in other commercial contexts, they appear to be important to many parties attempting to protect their information and innovation. In a world where these attributes represent an increasing fraction of the value of transactions,[121] the role of courts in commercial exchange should grow rather than shrink over time. Importantly, however, party demand for courts is not wholly inelastic; our empirical studies demonstrate that parties located in jurisdictions with courts that provide weak protections for innovation are more likely than other parties to opt for arbitration.[122] Put differently, where court rules or procedures interfere with parties' ability to protect their innovation, parties will do what they can to avoid them.

If courts desire to provide value to contracting parties, thereby facilitating transactions involving innovation, then particular attention should be paid to the procedural and substantive rules that are applied to claims involving the protection of innovation. In particular, the data suggests that nations wishing to compete effectively for technologically sophisticated investments must do more than credibly commit to enforcing arbitration clauses and awards. Court reforms are likely essential.

What will matter to contracting parties are the rules and standards applied to the granting of injunctive relief, as well as the substantive doctrines most likely to affect contracting parties, particularly the ability of parties to contract for innovation protections. This point requires a bit of elaboration here. Outside the context of enforcing contract terms, arbitrators very typically apply the same governing rules that are used by courts,[123] so at first glance it is not clear that the substantive legal principles applied in courts would drive parties to arbitration. Where the substantive rules are influenced by contract law principles, however, the results in the

---

121. *See, e.g.*, Jean Raymond Homere, *Intellectual Property Rights Can Help Stimulate the Economic Development of Least Developed Countries*, 27 COLUM. J.L. & ARTS 277, 280 (2004) ("Intellectual property has been recognized as the most valuable asset in many commercial transactions . . . .").

122. *See supra* section III(B)(5).

123. *See* Christopher R. Drahozal, *Is Arbitration Lawless?*, 40 LOY. L.A. L. REV. 187, 214 (2006) ("The attitudes of arbitrators toward following the law do not appear all that different from the attitudes of judges . . . .").

two forums can differ. The issue is essentially a matter of contract enforceability. In arbitration, the parties' contract is paramount,[124] but for courts, governing legal principles are more likely to trump the contract.[125]

For example, a court in jurisdiction X might insist on the application of X law to the parties' claim, whereas an arbitrator is more likely to apply the law of jurisdiction Y if the parties state in their contract that Y law is to apply. Even when it is clear that X law will generally apply, parties sometimes attempt to contract for an effective alteration of the legal standard. Consider, for example, noncompete clauses. The general rule is that an employee is free to take up any alternative work once she leaves a firm, but a noncompete clause is an attempt to contract around the employee's freedom to prevent the loss of trade secrets or other proprietary information.[126] Some, but not all, courts will enable parties to contract for this protection.[127] Consider also the standard for obtaining an injunction. Parties might attempt to incorporate a different standard into their contract, or, as we observed in our contracts, they might contract for terms that suggest one party automatically concedes that the standard, or at least part of its factors, is satisfied.[128] If courts are more reluctant to enforce these provisions, parties may be driven to arbitration, which deprives them of the benefits to court resolution of their disputes.

We do not mean to suggest that courts should enforce party contracts related to innovation regardless of what the contracts say and of the policy goals embedded in the generally applicable rules. Instead, our assertion is more modest: courts should pay careful attention to the rules that they craft in the context of innovation because they can entail underappreciated economic costs. By driving parties to arbitration or otherwise making it more difficult for them to protect their innovation, less innovation, less value-enhancing trade, or both, might result. These costs are less significant in other commercial contexts—i.e., contexts not involving innovation—where arbitration serves as an effective substitute to court resolution of disputes.

Given that we are not ourselves experts in intellectual property, we must leave to others a full debate over the policy implications of our empirical findings. We mention here just a few matters that seem to be worthy of further consideration. First, courts and legislators should

---

124. *Cf.* Christopher R. Drahozal & Keith N. Hylton, *The Economics of Litigation and Arbitration: An Application to Franchise Contracts*, 32 J. LEGAL STUD. 549, 569 (2003) (highlighting that arbitrators may be more likely to enforce contractual punitive damages restrictions than courts).

125. *See id.*

126. Bruce Kobayashi & Larry Ribstein, *Privacy and Firms*, 79 DENV. U. L. REV. 526, 530 (2002).

127. *Id.*

128. *See supra* section III(B)(3).

consider whether it makes sense to set up courts with special expertise in IP matters. Within the United States, the Maryland Business and Technology Court is an example.[129] In addition, some have proposed specialized patent trial courts within the United States whose conclusions would be entitled to deference in the U.S. Court of Appeals for the Federal Circuit.[130] In the United Kingdom, the Intellectual Property Enterprise Court (located in London) hears patent, copyright, and trademark claims.[131] In addition to providing specialized judges, the court applies special rules designed to enable more effective case management and lower cost assessments.[132]

One of the advantages of arbitration is that parties can pick arbitrators with expertise in the subject matter of their dispute,[133] and specialized courts can replicate (to some extent at least) that capability for courts. It certainly is the case that states and judges are setting up business courts, in part, in response to perceived competition from arbitration.[134] That said, none of the contracts we studied specifically contracted for disputes to be resolved in a specialized business or technology court, which at least raises questions about their perceived value to parties. However, one explanation for a failure to designate specific courts is a desire to obtain injunctive relief wherever necessary to protect the innovation.[135] Regarding expert judges, parties to contracts that contemplate patent actions—which are more commonly resolved by expert judges[136]—seem more likely to choose courts rather than arbitration to resolve those claims. At the very least, more careful study of party preferences seems warranted.[137]

---

129. *See* John F. Coyle, *Business Courts and Interstate Competition*, 53 WM. & MARY L. REV. 1915, 1969 (2012) (describing specialized courts created under the Maryland Business and Technology Case Management Program).

130. Arti K. Rai, *Specialized Trial Courts: Concentrating Expertise on Fact*, 17 BERKELEY TECH. L.J. 877, 877–79 (2002).

131. *Intellectual Property Enterprise Court (Formerly Patents County Court)*, HM COURTS & TRIBUNALS SERV., JUSTICE, http://www.justice.gov.uk/courts/rcj-rolls-building/intellectual-property-enterprise-court (last updated Jan. 9, 2014). This court was formerly called the Patents County Court, which was established in 1990. HM COURTS & TRIBUNAL SERV., THE PATENTS COUNTY COURT GUIDE 3 (2012), *available at* http://www.justice.gov.uk/downloads/courts/patents-court/patents-court-guide.pdf.

132. Sarah Cook, *Patents County Court Restructures to Become the Intellectual Property Enterprise Court*, MONDAQ, http://www.mondaq.com/x/267172/Trademark/Patents+County+Court+Restructures+To+Become+The+Intellectual+Property+Enterprise+Court (last updated Oct. 4, 2013); *How the PCC Became A Global Player*, MANAGING INTELL. PROP. (Mar. 25, 2013), http://www.managingip.com/Article/3179044/How-the-PCC-became-a-global-player.html.

133. *See supra* note 25 and accompanying text.

134. Christopher R. Drahozal, *Business Courts and the Future of Arbitration*, 10 CARDOZO J. CONFLICT RESOL. 491, 492 (2009).

135. *See supra* section III(B)(2).

136. *See supra* text accompanying note 130.

137. We also note that specialized courts may be less valuable if they create too much centralized decision making. *See, e.g.*, Craig Allen Nard & John F. Duffy, *Rethinking Patent Law's Uniformity Principle*, 101 NW. U. L. REV. 1619, 1620–25 (2007) (arguing that deficits in

In addition, our findings suggest that courts should avoid adopting rules that make a judicial forum less attractive than arbitration, or at least they should proceed with a keen awareness of the consequences of their decisions. If courts adopt rules less favorable to protecting innovation, and if parties can replicate the more favorable rules in arbitration, parties will likely switch to arbitration—but at the cost of using a less preferred means of dispute resolution. The following are examples of rules that might have such an effect.

- Court decisions refusing to enforce or giving only limited effect to specific performance clauses. Although some courts give full effect to specific performance clauses,[138] others do not, requiring the party seeking injunctive relief nonetheless to prove that it will likely suffer irreparable harm.[139] This disagreement has taken on renewed significance in the wake of the U.S. Supreme Court's decision in *eBay, Inc. v. MercExchange, L.L.C.*[140] *eBay* involved a patent infringement case in which the Federal Circuit employed a presumption of irreparable harm.[141] The Supreme Court rejected the use of the presumption in this context, holding that the party seeking injunctive relief must

---

decisions of the Federal Circuit can be traced to the fact that no other U.S. courts compete with it in deciding cases); John M. Golden, *The Supreme Court as "Prime Percolator": A Prescription for Appellate Review of Questions in Patent Law*, 56 UCLA L. REV. 657, 660–61 (2009) (same). Here, we contemplate the possibility of multiple specialized courts available to the parties.

138. *See, e.g.*, Martin Marietta Materials, Inc. v. Vulcan Materials Co., 68 A.3d 1208, 1226 (Del. 2012) (explaining that Delaware "courts have long held that 'contractual stipulations as to irreparable harm alone suffice to establish that element for the purpose of issuing . . . injunctive relief'").

139. *See, e.g.*, Dominion Video Satellite, Inc. v. Echostar Satellite Corp., 356 F.3d 1256, 1264 (10th Cir. 2004) (refusing to make findings of irreparable harm based solely on the breach of an exclusivity provision); Smith, Bucklin & Assocs., Inc. v. Sonntag, 83 F.3d 476, 478, 481 (D.C. Cir. 1996) (stating that a noncompete contractual provision alone is insufficient to show irreparable harm); Baker's Aid v. Hussmann Foodservice Co., 830 F.2d 13, 16 (2d Cir. 1987) (same); Riverside Publ'g Co. v. Mercer Publ'g LLC, No. C11-1249RAJ, 2011 WL 3420421, at *8 (W.D. Wash. Aug. 4, 2011) ("giv[ing] little weight to the clause in the Settlement Agreement that pre-declares that any breach of the Agreement will result in irreparable harm" and holding that the clause "does not relieve Riverside of its obligation to demonstrate irreparable harm"); *see also* RESTATEMENT (SECOND) OF CONTRACTS § 359 cmt. a (1981) ("Because the availability of equitable relief was historically viewed as a matter of jurisdiction, the parties cannot vary by agreement the requirement of inadequacy of damages, although a court may take appropriate notice of facts recited in their contract."); 1 COMMERCIAL CONTRACTS: STRATEGIES FOR DRAFTING & NEGOTIATING § 11.06[A], at 11-37 (Vladimir R. Rossman & Morton Moskin eds., 2d ed. 2013) ("Parties may include a clause providing for the remedy of specific performance in their contract. However, whether a court will honor that contract provision will depend on the jurisdiction."); Frederick A. Brodie & Nathan R. Smith, *The False Promise of Injunction Clauses*, MANAGING INTELL. PROP., May 2009, at 92, 94 ("The net result: contract language cannot create a right to injunctive relief when an injunction would otherwise be inappropriate.").

140. 547 U.S. 388 (2006).

141. *Id.* at 393–94.

prove irreparable harm through the factors traditionally considered in this context.[142] Since *eBay*, lower courts have applied the Court's reasoning to a broad array of contractual and intellectual property contexts.[143] In all of these contexts, then, the question arises whether a moving party must prove irreparable harm even in the face of a contract clause that states that the nonmoving party concedes that irreparable harm would result. Given that arbitrators are not bound to award the same remedies that courts would award in the same circumstances, an arbitrator may be more likely to enforce a specific performance clause than would a court. And if an arbitrator did so, a court would almost certainly enforce the resulting arbitral award.[144] However, the consequent delay (in the context of provisional relief), the need for possible *ex post* court enforcement, and the uncertainty regarding court enforcement can all impose significant costs on the party needing protection.

- Court restrictions on the ability of parties to contract for damages (in addition to or in lieu of injunctive relief). Given the difficulty of proving damages for breaches of intellectual property rights,[145] parties might wish to specify a dollar value of harm in the event of certain contract breaches. This contracting technique might be especially valuable to parties who contemplate degradation of a trademark or limited unauthorized use of copyrighted or patented materials after the expiration of a contract term. Courts vary in their attitude toward when liquidated damages are "reasonable."[146] Moreover, in the context of

142. *Id.* at 394.

143. *See* Ronald T. Coleman Jr. et al., *Applicability of the Presumption of Irreparable Harm After* eBay, 32 FRANCHISE L.J. 3, 4–9 (2012) (discussing how lower federal courts have interpreted *eBay* in the context of other intellectual property fields and specifically in the context of franchise litigation); Mark P. Gergen et al., *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203, 214–15 (2012) (noting how lower federal courts have applied *eBay* to subject matter as diverse as federal constitutional law and state tort law).

144. EDWARD YORIO & STEVE THEL, CONTRACT ENFORCEMENT: SPECIFIC PERFORMANCE AND INJUNCTIONS § 19.4, at 19-14 to -18 (2d ed. Supp. 2013).

145. *See supra* notes 35–36 and accompanying text.

146. On the reasonableness standard and applicable factors, see U.C.C. § 2-718 (2011); RESTATEMENT (SECOND) OF CONTRACTS § 356(1) (1981). On differing approaches to the enforcement of liquidated damages clauses, see Ian R. Macneil, *Power of Contract and Agreed Remedies*, 47 CORNELL L.Q. 495, 504–09 (1962) (surveying general differences); Douglas R. Hafer & Logan W. Simmons, *Lost Future Royalties: Lessons From Recent Decisions*, 31 FRANCHISE L.J. 150, 154–55 (2012) (discussing different perspectives on the enforceability of liquidated damages provisions to cover lost future royalties after termination of a franchise agreement).

covenants not to compete, courts differ in the extent to which liquidated damages provisions[147] are enforceable in the event of a breach of the covenant.[148]

- Rules treating the enforceability of contract provisions attempting to circumvent the impact of the U.S. Supreme Court's ruling in *MedImmune, Inc. v. Genentech, Inc.*[149] In *Genentech*, the Court ruled that a licensee under a currently effective license agreement had standing to bring a declaratory judgment action challenging the validity of the patent.[150] Prior to *Genentech*, many thought such suits were not permitted unless the licensee first repudiated the agreement.[151] In the aftermath of the opinion, questions have arisen regarding the extent to which licensors can contract around the opinion to effectively defeat patent validity challenges by current licensees.[152] Examples include the enforceability of agreements that expressly forbid the licensee to challenge the patent as well as contract provisions that cancel or change the terms of contracts in the event that the licensee brings suit.[153]

  The Second Circuit has recently held that pre-litigation agreements prohibiting a licensee from challenging a patent's validity are void as against public policy.[154] The policy concern includes ensuring that there is a venue available for an effective challenge to an invalid patent.[155]

---

147. Liquidated damages are common contractual remedies for breach of a noncompetition clause. Blase Indus. Corp. v. Anorad Corp., 442 F.3d 235, 238 (5th Cir. 2006).

148. Some courts hostile to specific enforcement of covenants not to compete are similarly hostile to liquidated damages clauses for breach of the covenant. *See, e.g.*, Cherry, Bekaert & Holland v. Brown, 582 So. 2d 502, 505–06 (Ala. 1991) (holding that what amounted to a noncompete clause in a partnership agreement was unenforceable in an action for liquidated damages against professionals under Alabama law); Junkin v. Ne. Ark. Internal Med. Clinic, 42 S.W.3d 432, 437–38 (Ark. 2001) (expressing similar concerns). Others see enforcement of liquidated damages provisions as a compromise means for enabling an employer or franchisor to protect its investments. Howard v. Babcock, 863 P.2d 150, 154 (Cal. 1993); Robert W. Emerson, *Franchising Covenants Against Competition*, 80 IOWA L. REV. 1049, 1098–1100 (1995).

149. 549 U.S. 118 (2007).

150. *Id.* at 137.

151. Repudiating licensees were permitted to challenge a patent's validity after Lear, Inc. v. Adkins, 395 U.S. 653, 668–71 (1969) (rejecting the doctrine of licensee estoppel—that a licensee operating under a license agreement could not challenge the validity of the licensor's patent—as being inconsistent with federal policy).

152. For a discussion of these issues, see generally Alfred C. Server & Peter Singleton, *Licensee Patent Validity Challenges Following* MedImmune*: Implications for Patent Licensing*, 3 HASTINGS SCI. & TECH. L.J. 243 (2011).

153. *Id.* at 403–36.

154. Rates Tech. Inc. v. Speakeasy, Inc., 685 F.3d 163, 172 (2d Cir. 2012).

155. *Id.* at 171.

Given the social costs of the monopoly right embedded in a patent,[156] it does make sense for courts to protect third parties where necessary. On the other hand, unduly restrictive approaches could drive parties to arbitration and away from courts. A compromise position may be worth serious consideration here.

- Rules that limit the duration of the enforceability of provisions that apply after the expiration of the contract—i.e., in the context of trade secret protections. Consider for example, noncompete clauses, under which an employee or purchaser of a business agrees not to work for or operate a competing business for some period of time after the contract period.[157] Not all states will enforce these provisions in the context of employment,[158] and as the California CEO employment contracts indicate, this legal rule influences party demand for arbitration. The same could be true for states that enforce the provisions only if the restrictions apply for a short period of time. States often will enforce such provisions if reasonable in geographic scope and duration,[159] but the critical question is what counts as "reasonable."
- Uncertainties due to Federal Circuit review of claim construction rulings. The Federal Circuit applies a de novo standard for reviewing district court rulings on claim construction in patent cases,[160] resulting in a high reversal rate (historically, at least) and much duplication of cost and effort.[161] By comparison, the grounds for reviewing arbitral awards are much more limited, with little or no court review of the merits of the arbitrator's award.[162] Accordingly,

156. LANDES & POSNER, *supra* note 108, at 300.

157. Kobayashi & Ribstein, *supra* note 126, at 530.

158. *Id.*

159. 6 SAMUEL WILLISTON & RICHARD A. LORD, A TREATISE ON THE LAW OF CONTRACTS § 13:5, at 197 (4th ed. 2009).

160. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) ("[A]s a purely legal question, we review claim construction *de novo* on appeal including any allegedly fact-based questions relating to claim construction.").

161. Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L.J. 1075, 1104 (2001); Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 233 (2005); Michael Saunders, *A Survey of Post-*Phillips *Claim Construction Cases*, 22 BERKELEY TECH. L.J. 215, 232–34 (2007); Andrew T. Zidel, Comment, *Patent Claim Construction in the Trial Courts: A Study Showing the Need for Clear Guidance from the Federal Circuit*, 33 SETON HALL L. REV. 711, 745–46 (2003).

162. 9 U.S.C. § 10 (2012). Some courts review awards for manifest disregard of the law (i.e., the arbitrators knowingly refused to follow the law in making the award), but other courts have rejected the availability even of that ground for review of the merits. *See* Wachovia Sec., LLC v.

> commentators have argued that arbitrating claim construction "significantly reduces the risk that the parties will have to retry infringement and validity issues because of erroneous claim construction."[163] A recent empirical study has found that the reversal rate in claim construction cases has declined significantly even without any change in standard,[164] making arbitration less attractive than it was previously. Although the Federal Circuit recently reaffirmed its de novo standard of review en banc,[165] the Supreme Court subsequently granted review on the issue,[166] making it uncertain whether this benefit of arbitration will persist.

V. Conclusion

Contract negotiation and drafting and party preferences for dispute resolution differ in the context of innovation compared to other commercial environments. To foster and protect innovation, industry norms, pragmatic compromise, and informal, non-legal dispute resolution often give way to formal legal representation, reliance on contract documents, and, where necessary, court enforcement of the parties' bargain. Through a study of several different types of business contracts, including technology contracts, joint-venture agreements, franchise agreements, and CEO employment agreements, we show that a clear majority of U.S. contracting parties opt for courts rather than arbitration to protect at least some of their innovation and that, although this preference appears to be greatest for patent protection, it seems to persist for a wide variety of intellectual property. Although we cannot fully recreate the motivation of the parties,

---

Brand, 671 F.3d 472, 481 & nn.6–7 (4th Cir. 2012) (discussing the differing interpretations taken by circuit courts).

163. Stephen P. Gilbert, *Arbitrating to Avoid the* Markman *Do-Over*, DISP. RESOL. J., Aug.–Oct. 2006, at 1, 3.

164. *See* J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 1 (2014). Analyzing the Federal Circuit's claim construction reversal rate, Anderson & Menell found:

> The data show that the claim construction reversal rate has dropped significantly since the [Federal Circuit's 2005] *Phillips* decision: from 38.6% to 25.6% on a per-claim-term basis. The reversal rate on a per-case basis (i.e., percentage of cases with at least one reversed claim term) has fallen from 41.8% prior to *Phillips* to 31.6% following the decision. During 2009, the reversal rate dipped to 16.5%. The reversal rate for 2011 was 20.4%.

Id.

165. Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp., 744 F.3d 1272, 1276–77 (Fed. Cir. 2014) (en banc) ("[W]e apply the principles of *stare decisis*, and confirm the *Cybor* standard of *de novo* review of claim construction, whereby the scope of the patent grant is reviewed as a matter of law.").

166. Teva Pharm. USA, Inc. v. Sandoz, Inc., 723 F.3d 1363 (Fed. Cir. 2013), *cert. granted*, 82 U.S.L.W. 3566 (U.S. Mar. 31, 2014) (No. 13-854).

the preference for courts seems motivated largely, though probably not exclusively, by the perception that courts are more effective venues for obtaining property-type protections, including injunctive relief.

Our contracts also provide some evidence that party preference for courts is contingent on both the quality of the court system and the ability of the parties to obtain court enforcement of their contractual protections. No doubt the legal rules that apply to the protection of innovation must take into account the needs of society as well as the parties to the contract. Nevertheless, we argue that states must give very careful thought to the rules that they craft for the protection of innovation, at least where they interface with contract principles. For better or worse, parties are good at contracting around undesirable legal rules, but those efforts come at the cost of forcing them into inferior forums for the protection of their rights.

Copyright Registrations: Who, What, When, Where, and Why

Dotan Oliar,* Nathaniel Pattison** & K. Ross Powell***

The registration records at the U.S. Copyright Office provide a valuable lens on the use and performance of the copyright system, but have not yet been studied systematically. Using an original data set containing all 2.3 million registrations from 2008 to 2012, we provide a snapshot of current patterns of registration. We describe who is registering what, where, when, and why. Our main findings include the types of work being registered, how the registrations of individuals and firms differ, when works are being registered relative to their date of creation and date of publication, the age distribution of authors in different creative fields, and the geographic distribution and concentration of registration claimants.

The registration data collected and reported are superior to those relied upon in prior literature and should therefore prove useful to lawmakers and scholars wishing to measure the effect of copyright law on creativity or otherwise reform our copyright law.

I. INTRODUCTION 2212
II. WHY REGISTER? LEGAL AND MARKET REASONS FOR REGISTRATION 2215
  A. Legal Reasons 2215
  B. Market-Based Reasons: A Registry Can Facilitate Trade and Enhance Incentives to Create 2216
III. DATA 2219
IV. RESULTS 2220
  A. What Is Being Registered? 2221
  B. Who Is Registering? 2225
  C. When Are Works Registered? 2228
  D. Where Are Works Registered? 2233
V. IMPLICATIONS 2238
  A. Use of Registration Data in Copyright Lawmaking 2238
  B. Inference for the Unregistered Iceberg 2240
  C. Prior Literature's Use of Problematic Data 2241
  D. The Complex Relation Between Registration Counts and the Number of the Underlying Works 2243

---

* Professor of Law, University of Virginia School of Law.

** Ph.D. Candidate, University of Virginia Department of Economics.

*** J.D. Candidate, University of Virginia School of Law. We thank Robert Brauneis, Jane Ginsburg, Paul Goldstein, Rob Kasunic, Raymond Ku, Michael Meurer, Pamela Samuelson, and participants in the 2014 "Steps Toward Evidence-Based IP" Symposium at the University of Texas School of Law for their valuable comments and suggestions.

VI. CONCLUSION 2245
APPENDIX: DATA 2246

I. Introduction

Our copyright system should, under Congress's constitutional mandate, "promote the Progress of Science and useful Arts" by securing rights to authors in their creative writings.[1] But how might one measure, or at least get a sense of, the system's actual operation and performance? For example, who are the main users of the system? What "writings" are they creating? And, more generally, how well does the system promote creativity in the arts?

These and similar questions are hard, but a natural place to start looking for answers to them seems to be the records of the United States Copyright Office. Indeed, in the analogous case of patent law, researchers have long regarded patents as a measure of inventive activity.[2] Yet in the case of copyright law, registration records have received virtually no attention. The analysis of copyright registrations is timely, as policy makers and regulators in both the United States and the European Union are considering major overhauls of their copyright laws, wishing to adapt them for the digital age.[3] Having a good idea of how the registration system works should be a necessary prerequisite to assessing the desirability of its performance and to improving it.

The United States is unique in having an operating and widely used public registry of copyright claims.[4] The number of registrations it attracts

---

1. U.S. CONST. art. I, § 8, cl. 8.

2. For early and pioneering work in the field, see, e.g., JACOB SCHMOOKLER, INVENTION AND ECONOMIC GROWTH (1966); F.M. Scherer, *Firm Size, Market Structure, Opportunity, and the Output of Patented Innovations*, 55 AM. ECON. REV. 1097 (1965).

3. Congress has started holding hearings on copyright reform. *See A Case Study for Consensus Building: The Copyright Principles Project: Hearing Before the Subcomm. on Courts, Intellectual Prop., & the Internet of the H. Comm. on the Judiciary*, 113th Cong. 1 (2013) (statement of Rep. Howard Coble, Chairman, Subcomm. on Courts, Intellectual Prop., & the Internet) (stating that the hearing is "an initial step in this Subcommittee's effort to undertake a comprehensive review of our Nation's copyright laws"). The European Commission recently ended a two-month public consultation in which it solicited reactions to eighty questions on particular issues of copyright law. *See Public Consultation on the Review of the EU Copyright Rules*, EUROPEAN COMMISSION, http://ec.europa.eu/internal_market/consultations/2013/copyright-rules/docs/consultation-document_en.pdf (last updated Apr. 10, 2014) (explaining that the consultation is aimed towards "ensuring that the EU copyright regulatory framework stays fit for purpose in the digital environment").

4. *See* Jonathan N. Osder et al., *Maximizing Copyright Protection at Minimal Cost – Why Foreign Companies Should Register with the U.S. Copyright Office*, DONAHUE GALLAGHER WOODS LLP (2012), *available at* https://web.archive.org/web/20130928012809/http://www.donahue.com/article/maximizing-copyright-protection-at-minimal-cost-why-foreign-companies-should-register-with-the-u-s-copyright-office (accessed by searching for article in the Internet Archive index) (emphasizing the different rights that public registration entails in the

annually outweighs the number of those in all other major countries with public registries combined.[5] While registration is no longer a precondition for the validity of copyrights,[6] Congress has still sought to encourage it by extending several legal advantages to those who register. Further, the volume of registrations in the United States has followed a steady upward trend, even while registration has become permissive.[7] Thus, as a factual matter, many industry and individual copyright owners continue to register their works.[8] Registrations in the United States today therefore provide as good a window into the use and performance of our copyright system as they ever did.

Studying the United States' registration practice is valuable for assessing the desirability and performance of registration itself. The Copyright Office is currently considering reforming the registration formality, and the European Commission—in its most recent public consultation call—is wondering whether establishing a registry might actually be a good idea.[9] At the same time, the private market is not sitting still: against the general backdrop of no requirement to register and no public registry in many countries, numerous private copyright registries have entered the market.[10] Studying registration patterns in the world's greatest public registry may enable policy makers in other parts of the world to draw inferences about likely patterns of creativity in other potential registries. It may also help them to design their own registration system by giving them one example, which they may follow or improve upon.

In this Article, we introduce a copyright-registrations database and provide descriptive statistics of the information available in it. We have constructed an original data set containing over 2.3 million records that comprise all copyright registrations from 2008 to 2012. We extracted these

---

United States compared to other Berne Convention countries); *see also Response from 80 Member States to Questionnaire as at July 1, 2010*, WORLD INTELLECTUAL PROP. ORG., http://www.wipo.int/copyright/en/registration/replies_survey_copyright_registration.html (providing questionnaire answers from several member states about their copyright-registration systems).

5. *See* World Intellectual Prop. Org., Standing Comm. on Copyright and Related Rights, Survey of National Legislation on Voluntary Registration Systems for Copyright and Related Rights, Annex II, at 1 chart, SCCR/13/2 (Nov. 9, 2005) (showing that the United States had 2,844,127 copyright registrations between 1998 and 2002 while Argentina had the next highest number of registrations with only 282,488).

6. *See infra* Part II(A).

7. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 245 (2003) (finding a "growth rate of copyright registrations of about 1 to 2 percent per year").

8. *See* 2011 U.S. COPYRIGHT OFFICE ANN. REP. REG. COPYRIGHT 43 [hereinafter 2011 COPYRIGHT OFFICE REPORT] (showing consistent increases in the number of copyright registrations since 1869).

9. *See Public Consultation on the Review of EU Copyright Rules*, *supra* note 3, at 14.

10. *See infra* note 44 and accompanying text.

records from the Catalog of the Copyright Office online. Using these data, we examine who is registering copyrights, the characteristics of registered works, and the timing and geography of copyright registration.

A primary contribution of our Article is in extracting and analyzing the detailed information available inside individual copyright registrations.

We first review *why* people register. We put forth the reasons for why the state might be interested in having copyrights registered, and why private parties might wish to register their copyrights in general and in particular under our current copyright law. We show that while registration is formally permissive, there currently exist strong reasons to register copyrights voluntarily. This is evidenced by a widespread registration practice: registration rates in the United States have grown over time, starting from an era when registration was a mandatory prerequisite for protection to our present times. Registration rates can thus serve as a proxy for the level of financially induced authorship.

We then discuss *what* is registered, describing what types of works copyright owners are registering across types of works by published status. We then address *who* registers, focusing on whether copyrights are registered by individuals or entities. Next, we turn to *when*, describing the timing of registration along the creative process and the age distribution of authors according to the type of work registered. Finally, we show *where* works are registered, describing the geography of expressive creativity.

We find that firms claim the large majority of copyright registrations for motion pictures, serials, and computer files, while music (especially when coupled with sound recordings) and dramatic works are claimed primarily by individuals. Text is claimed almost equally by individuals and firms. We also find that firms tend to register published works whereas individuals tend to register unpublished works. Moreover, types of works that are mainly registered by firms are also geographically concentrated, with many registrations coming from relatively few states. Types of works that are mainly registered by individuals are relatively geographically dispersed.

While our focus in this Article is descriptive, we note several implications that our study has for copyright law and scholarship.[11] We suggest that lawmakers considering copyright law reform should find our data helpful.[12] We also note that our data, extracted from individual registration records, are superior to registration data taken from the annual reports of the Copyright Office and relied upon in prior literature.[13]

---

11. *See infra* Part V.
12. *See infra* subpart V(A).
13. *See infra* subpart V(C).

II. Why Register? Legal and Market Reasons for Registration

A. Legal Reasons[14]

Registering a work involves recording the work's ownership and other statutorily required information with the Copyright Office[15] and "deposit[ing] . . . copies of the work with the Library of Congress."[16] The registration requirement became more lenient over time. Historically, "registration prior to publication was a . . . prerequisite for protection."[17] The Copyright Act of 1909 relaxed this requirement. It "made publication with notice the sole [prerequisite] for protection."[18] "Registration (and . . . deposit) was still demanded after publication, but noncompliance would not void the copyright."[19] Finally, the Copyright Act of 1976 dropped the requirement to register, making registration completely voluntary.[20] At present, in other words, copyright protection attaches at the moment one fixes her work in a physical object (such as putting text on paper, painting on canvas, etc.), and the validity of the copyright does not depend on its registration with the Copyright Office.

While relaxing the duty to register and then making it voluntary, Congress still sought to encourage registration by providing several benefits to those who do. First, registration is still required prior to bringing an infringement action over a U.S. work.[21] Second, statutory damages and

---

14. This subpart is adapted from Dotan Oliar & Nicholas Matich, *Copyright Pre-registration: Evidence and Lessons from the First Seven Years, 2005–2012*, 55 ARIZ. L. REV. 1074, 1080–81 (2013).

15. *See also* 17 U.S.C. § 409 (2012) (listing the information that must be included in an application for registration).

16. Oliar & Matich, *supra* note 14, at 1080. For the current version of this registration formality, see 17 U.S.C. § 407.

17. Oliar & Matich, *supra* note 14, at 1080; *see also* Act of Mar. 3, 1891, ch. 565, § 3, 26 Stat. 1106, 1107–08 (amending the copyright statute to require that individuals seeking copyright protection register their work "on or before the day of publication").

18. Oliar & Matich, *supra* note 14, at 1080; *see also* Act of Mar. 4, 1909, ch. 320, § 9, 35 Stat. 1075, 1077.

19. Oliar & Matich, *supra* note 14, at 1080. *See also* § 12, 35 Stat. at 1078 (requiring that copies of the work and "a claim of copyright" be deposited in the copyright office after the publication of notice); STAFF OF SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS, S. COMM. ON THE JUDICIARY, 86TH CONG., STUDY NO. 17: THE REGISTRATION OF COPYRIGHT 31 (Comm. Print 1960) (prepared by Benjamin Kaplan) [hereinafter REGISTRATION STUDY] (suggesting "claim of copyright" to mean application for registration). Registration was still a prerequisite in certain instances, such as renewing a copyright, protecting certain unpublished works, and filing an infringement action. *See* §§ 11–12, 23, 35 Stat. at 1078, 1080. Furthermore, refusing to comply with express registration demands made by the Register of Copyright voided the claimant's copyright. *See* § 13, 35 Stat. at 1098; *see also* REGISTRATION STUDY *supra*, at 17–19 (discussing the terms of the Copyright Act of 1909).

20. Act of Oct. 19, 1976, Pub. L. No. 94-553, § 408, 90 Stat. 2541, 2580 (codified as amended at 17 U.S.C. § 408 (2012)).

21. The Copyright Act of 1909 "made registration a general prerequisite for bringing an infringement action." Oliar & Matich, *supra* note 14, at 1080; *see also* § 12, 35 Stat. at 1078 ("No

attorney's fees are "available as remedies only for works that had been registered prior to their infringement."[22] Third, prompt registration—within five years of publication—creates a prima facie evidentiary presumption respecting the validity of the copyrights and the facts stated in the certificate of registration.[23] Fourth, "a certificate of registration can be recorded with U.S. Customs and Border Protection to prevent the importation of infringing copies."[24] Lastly, starting in 2005, certain authors can preregister their claims as a way to curb prerelease infringement.[25]

B. *Market-Based Reasons: A Registry Can Facilitate Trade and Enhance Incentives to Create*

Even in the absence of a duty to register, or centrally provided incentives to register, creators have reasons to register their works. First, registration can reduce transaction costs. Copyright owners profit from their works not only by using them[26] but often also by selling or licensing them.[27] For transactions to take place, a potential buyer or licensee would have to know the identity and contact information of the copyright owner.[28]

---

action or proceeding shall be maintained for infringement of copyright in any work until the provisions of this Act with respect to the deposit of copies and registration of such work shall have been complied with."). This requirement now applies only to U.S. works. 17 U.S.C. § 411(a) (2012). "The Berne Convention Implementation Act of 1988 limited the duty to register prior to suit only to the case of U.S. works." Oliar & Matich, *supra* note 14, at 1081; *see also* Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, § 9(b)(1), 102 Stat. 2853, 2859 (1988) (codified as amended at 17 U.S.C. § 411 (2012)); Berne Convention for the Protection of Literary and Artistic Works art. 5(2), *opened for signature* July 24, 1971, S. TREATY DOC. NO. 99-27 (entered into force Mar. 1, 1989) ("The enjoyment and the exercise of these rights shall not be subject to any formality; such enjoyment and such exercise shall be independent of the existence of protection in the country of origin of the work.").

22. Oliar & Matich, *supra* note 14, at 1081; *see also* Act of Oct. 19, 1976, Pub. L. No. 94-553, § 412, 90 Stat. 2541, 2583 (codified as amended at 17 U.S.C. § 412 (2012)). Congress sought to encourage registration to counteract any potential reduction to registrations from a permissive registrations approach. *See* H.R. REP. NO. 94-1476, at 158 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5774 ("Copyright registration for published works, which is useful and important to users and the public at large, would no longer be compulsory, and should therefore be induced in some practical way.").

23. 17 U.S.C. § 410(c). The Copyright Act of 1909 attached a broader evidentiary presumption, that allowed any registration certificate to "be admitted in any court as prima facie evidence . . . ." § 55, 35 Stat. at 1086.

24. Oliar & Matich, *supra* note 14, at 1081; *see also* 19 C.F.R. §§ 133.31–.37 (2013) (establishing the process for recording a copyright registration with U.S. Customs and Border Protection).

25. *See* 17 U.S.C. § 408(f) (2012) (codifying the preregistration of copyrights). We do not include preregistrations in this Article. To learn of the statistical characteristics of preregistrations, see Oliar & Matich, *supra* note 14, at 1090–94.

26. *See* 17 U.S.C. § 106 (listing the exclusive rights granted to copyright owners).

27. *E.g.*, *id.* § 201(d) ("The ownership of a copyright may be transferred in whole or in part . . . .").

28. *See id.* § 204(a) (stating that a transfer of copyright ownership is not valid without a signed writing from the owner or the owner's agent).

If getting this information is costly, fewer transactions are made. While in many cases these costs might be low (e.g., a named author who still retains the copyrights and is easy to locate), in many other cases they might be high. A work's author is not necessarily the copyright owner, as ownership may have been transferred (such as to a publisher) or sold, and works may have several owners.[29] Even if the author retained her copyrights, she may have died—note that a copyright would last seventy years after her death[30]—and her heirs may not be easily known or found.

Registration can also reduce the risk of unintended infringement. Copyright infringement is a strict liability tort and may be found even if a user was sure he was clearing the rights from the rightful owner.[31] This risk may cause licensees to invest excessively in search and verification of ownership. A registry could alleviate this risk by tending to prove facts regarding ownership or by being combined with laws protecting from liability those who licensed from the registered owner in good faith.

There are additional transactional benefits to registration. Entities that own copyrights may be the target in a merger or an acquisition, for example. As part of that deal, they often need to assure acquirers of the validity of the copyrights. Registration tends to reduce the costs of the accompanying due diligence—for example, through the presumption of validity pertaining to the certificate of registration.[32] Registration of a script, for example, may help a film producer find and convince investors by, among other things, facilitating the taking of a security interest in the copyright.[33] A firm interested in raising capital or in going public can use its portfolio of registered works as a way to credibly signal its creative potential to outsiders.[34] The ability to easily engage in these and similar transactions increases the return on creativity and thus translates into a greater incentive to create.

Additionally, the registration certificate signals to third parties that the Copyright Office examined the claim and determined that the copyright is

29. *See id.* § 201(a) ("The authors of a joint work are coowners of copyright in the work.").

30. *Id.* § 302(a).

31. *See, e.g.*, Harrisongs Music, Ltd. v. ABCKO Indus., Inc., 722 F.2d 988, 998–99 (1983) (stating that copying without intent to infringe still constitutes infringement and that "copyright infringement can be subconscious").

32. *See* 17 U.S.C. § 410(c) (explaining how copyright registration may constitute prima facie evidence of validity); *cf.* Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 647 (2002) (discussing how a patent communicates information to the public at a low cost).

33. *Cf.* Long, *supra* note 32, at 647 ("Even if patents conferred no protection, firms might find it desirable to obtain them as a means of credibly advertising their inventions.").

34. *Cf. id.* at 627–28 (explaining that firms may use patent portfolios to inexpensively and credibly convey information to outsiders).

valid.[35] If done prior to five years from first publication, registration constitutes prima facie evidence in litigation of the validity of the copyright and of the facts stated therein—most importantly, those regarding ownership.[36] On top of the positive inference from a registration, the lack of competing claims in the registry serves as a further assurance to transacting parties.

Moreover, third-party transferees who acquire an interest in a copyrighted work, such as buyers or licensees, can record documents pertaining to the transfer of copyrights in the Copyright Office. Such recordation gives all persons constructive notice of the facts stated in the recorded document[37] and helps a transferee perfect her claim against an unrecorded conflicting transfer.[38] A condition precedent to the recordation of transfers providing constructive notice, however, is that the underlying work had been registered.[39]

Registrations are an important component of extremely efficient public and private mechanisms for the clearance of predetermined fees for predetermined uses of copyrights. For example, to guarantee the receipt of certain compulsory license payments due under the Copyright Act, copyright owners should make sure that their copyrights are registered and that their addresses are updated in the records of the Copyright Office.[40] But this is true of other, nongovernmental registries as well: parties who wish to receive digital-performance royalties in a streamlined way must register with SoundExchange,[41] and parties who wish to be easily reached and paid for the public performance of their songs need to register with a performance-rights organization, such as the American Society of Composers, Authors, and Publishers (ASCAP).[42]

---

35. *See* 17 U.S.C. § 410(a) (explaining that the Register of Copyrights must examine a claim to ensure that statutory copyright requirements have been met before issuing a registration certificate).

36. *See supra* note 23 and accompanying text.

37. 17 U.S.C. § 205(c).

38. *Id.* § 205(d).

39. *Id.* § 205(c)(2).

40. *See id.* § 115(c)(1) (providing that a copyright owner must be "identified in the registration or other public records of the Copyright Office" in order to be entitled to royalties under a license).

41. *About Digital Royalties*, SOUNDEXCHANGE, http://www.soundexchange.com/artist-copyright-owner/digital-royalties/ ("You must be registered with SoundExchange in order to receive royalties from us; otherwise we won't know where to send your money!"). SoundExchange, it should be noted, was designated by the government to administer statutory licenses. *See, e.g.*, 37 C.F.R. § 380.4(b) (2013) ("SoundExchange, Inc. is designated as the Collective to receive statements of account and royalty payments from Licensees . . . and to distribute such royalty payments to each Copyright Owner and Performer.").

42. *ASCAP Payment System: Registering Your Works with ASCAP*, ASCAP, http://www.ascap.com/members/payment/registering.aspx ("The first step to getting paid is making sure your music is registered at ASCAP. After all, we can't pay you for the performance of a work if we don't know you are the writer or publisher!").

This last point serves to show that nothing mandates that registries be run by the government. We have seen above that although in the United States there is a governmental registry, private parties have created their own registries for specific purposes—such as the routine clearance of certain rights. The powerful reasons that make people register with the Copyright Office today in the absence of a general duty to register and participate with private registries exist abroad as well. In the United Kingdom (and other European countries), there is no governmental registry of copyrights.[43] Still, there are various private registries for the routine clearance of use permissions that parallel the functioning of ASCAP and SoundExchange.[44] In addition, there seems to be a flurry of privately run registries that offer registration and deposit services that are similar to those offered by the U.S. Copyright Office, highlighting the associated evidentiary benefits.[45]

These legal and extra-legal benefits of registration explain the substantial copyright-registration practice in the United States, which has grown gradually over time since the days in which registration was a precondition for protection, even while registration has become formally permissive.

III. Data

The data for this Article consist of all U.S. copyright registrations 2008–2012, extracted from the Catalog of the Copyright Office. The Catalog contains information about approximately 20 million records for works and documents registered since 1978.[46] However, the Copyright Office's database does not offer a bulk data download, instead only

---

43. *Automatic Right*, INTELL. PROP. OFF., http://www.ipo.gov.uk/types/copy/c-about/c-auto.htm ("There is no official registration system for copyright in the United Kingdom (UK) and most other parts of the world. There are no forms to fill in and no fees to pay to get copyright protection.").

44. *See, e.g.*, *How Do I Begin to Earn PPL Royalties?*, PPL, http://www.ppluk.com/I-Make-Music/Why-Should-I-Become-A-Member/How-do-I-begin-to-earn-PPL-royalties/ ("The PPL Repertoire Database holds data for millions of recordings, including where the Music was recorded, who owns the rights and who has performed on it.").

45. *See, e.g.*, *The Copyright Registration Service*, THE UK COPYRIGHT SERVICE, http://www.copyrightservice.co.uk/register/registration_centre ("Copyright registration with the UK Copyright Service is the fast, effective and low cost way to protect your work from infringement and misuse, by ensuring you always have the best evidence of ownership to protect your work and your rights."); *see also About Us*, COPYRIGHTDEPOSIT.COM, http://www.copyrightdeposit.com/aboutus.htm ("We are offering a permanent record of your creative work as well as a secure storage of your copyrighted material."); INT'L COPYRIGHT REGISTRATION SERVICE, http://www.copyrighthouse.co.uk/.

46. *About the Catalog*, U.S. COPYRIGHT OFF., http://copyright.gov/records/about.html (last modified Sept. 25, 2007).

allowing users to find records by entering individual search terms.[47] To gather the data for this Article, we created a program which systematically downloaded all registrations from 2008 to 2012, for a total count of 2,316,167 copyright registrations.[48] Many of the tables below show fewer observations; this is because some of the registrations are missing data.

When one uses the search feature of the Copyright Office online database, the records are returned in this form:

Figure 1: Example of Registration Record

Type of Work:	Music
Registration Number / Date:	PAu003712569 / 2012-07-03
Application Title:	A Song.
Title:	A Song.
Description:	Print material.
Copyright Claimant:	Jane Doe. Address: 20 Elm Lane, Santa Barbara, CA 93108.
Date of Creation:	2008
Nation of First Publication:	United States
Authorship on Application:	Jane Doe. Authorship: Music, Lyrics. Domicile: United States; Citizenship: United States
Rights and Permissions:	Jane Doe, 20 Elm Lane, Santa Barbara, CA 93108, (805) 555-1050, janedoe@aol.com
Names:	Doe, Jane

The data appendix contains the details of how we constructed the data set and variables reported in the analysis below.

IV. Results

Our empirical results are divided into four main parts: *What?*, *Who?*, *When?*, and *Where?* The first subpart describes the characteristics of copyright registrations, and in particular, what types of works are being registered. The next subpart details who is registering; specifically, whether they are individuals or firms. For registrations by individuals, we also describe the number of authors (and the number of claimants) per registration. The third subpart describes when copyrights are being

47. *Database Name: Copyright Catalog (1978 to Present)*, U.S. COPYRIGHT OFF., http://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi.

48. We begin in 2008 because registrant address data is missing from many or most observations in earlier years.

registered, relative to when they were created and when they were published. For registrations by individuals, we also describe the age distribution of authors at the time of creation. The last subpart describes the geographic distribution of copyright registrations.

A. What Is Being Registered?

There are two variables in a copyright registration record that indicate the nature of the work being claimed: the "Type of Work" and the "Class of Work." The Type of Work is more descriptive and is determined by the aspect of a work being claimed. It is recorded in the first line of the registration record.[49] The Class of Work is an administrative classification determined by the application form that the registrant uses[50] and is indicated by the two letters that begin the registration number.[51] Our analysis focuses on the more informative Type of Work.

The federal regulations governing copyright registrations describe what Types of Work belong in each class.[52] The form that the individual files to register the copyright depends on the Class of Work.[53] With the advent of online registration, this has become more complicated. When one registers online, at the beginning of the process one must choose a category for the work being registered and that category determines the contents of the online form.[54] There are more categories available for online registration than there are Classes of Work, but each online category corresponds to a specific class.[55] The options available for online registration, and their corresponding classes, are as follows: "Literary Work" (class TX), "Work of the Visual Arts" (class VA), "Sound

---

49. *See supra* Figure 1.

50. *See* 37 C.F.R. § 202.3(b)(1) (2013).

51. *See id.* § 202.3(b)(1)(i)–(v) (matching each category of work with a designated prefix). The Class of Work that covers group registrations of Serials (Class SE) works differently. While this class determines the regulations and forms applicable for group registrations, once registered each individual serial in the group is assigned with its own TX number. *See infra* note 56. Because of the manner in which these group registrations are indexed in the electronic database, we do not capture them in our study. *See infra* note 56. Renewal registrations are also assigned copyright numbers; these begin RE. *See, e.g.*, THE CATCHER IN THE RYE BY JEROME DAVID SALINGER, Registration No. RE0000018341 (Jan. 22, 1979) (denoting that the registered work is a "[r]enewal registration").

52. *See* 37 C.F.R. § 202.3(b)(1) (referring to categories of works as "classes").

53. Paper registration forms are available online. *U.S. Copyright Office Forms*, U.S. COPYRIGHT OFF., http://www.copyright.gov/forms/ (last modified May 2, 2014) (describing the physical registration form).

54. To register a claim online, a claimant must first open a free account with the Copyright Office. *See Welcome to the eCO (electronic Copyright Office) Tutorial*, U.S. COPYRIGHT OFF., http://www.copyright.gov/eco/eco-tutorial.pdf (showing a sample online form with Music not listed as a separate category).

55. *Compare id.* (showing eight example categories of Types of Works), *with* 37 C.F.R. § 202.3(b)(i)–(v) (listing five Classes of Works).

Recording" (class SR), "Work of the Performing Arts (includes music, lyrics, screenplays, etc.)" (class PA), "Motion Picture / Audio Visual Work" (class PA), and "Single Serial Issue" (class TX).[56]

Once an application is submitted, the Copyright Office assigns a Type of Work to each registration based on the aspect of the work being claimed.[57] There are more Types of Work that appear in registration records than there are number of classes. While a Type of Work can correspond to different Classes of Work—"Music" is the most prominent example—generally each Type of Work is associated with a single class.

Table 1: Classes of Work and Corresponding Types of Work[58]

Class of Work	Corresponding Types of Work
Class TX: Nondramatic literary works	Computer File, Serial, Text
Class PA: Works of the performing arts	Dramatic Work and Music; or Choreography, Kit, Motion Picture, Music
Class VA: Works of the visual arts	Map, Visual Material
Class SR: Sound Recordings	Music, Sound Recording, Sound Recording and Music, Sound Recording and Text

Since the assignment of Types of Work to sound recordings is particularly complex, we provide an example. Consider a musician that both composes and records a song. The Copyright Office has special rules for the registration of claims in sound recordings; if this artist wanted to

56. *Welcome to the eCO (electronic Copyright Office) Tutorial*, *supra* note 54 (showing a screenshot of the Type of Work selection page). Within copyright regulations, Serials are referred to as being in class SE. 37 C.F.R. § 202.3(b)(1)(v). However, single Serials are registered in class TX. 6A FEDERAL PROCEDURAL FORMS § 17:12, at 195 (Jared L. Kronenberg ed., 2010). The different class is a reflection of the fact that there is a different application form used for registering multiple Serials in one registration, a form that is unavailable for electronic application.

57. The Public Information Office of the Copyright Office confirmed by email that this was their practice. E-mail from JS, Public Information Office, U.S. Copyright Office, to K. Ross Powell (Jan. 24, 2014) (on file with authors).

58. There are other, much rarer possibilities. For example, there is a registration in class VA and Type of Work Serial. CORROSION, Registration No. VA0001822051 (Apr. 13, 2012). Our study also reports some statistics on mask works. Copyright regulations do not refer to a class for mask works, but like a class, mask works have a unique registration form and copyright number prefix (MW). *See generally* 37 C.F.R. § 211.

record her authorship in both the sound recording and the musical composition, she would have to register the work in class SR.[59] The Type of Work listed in the registration record would be "Sound Recording and Music." If she wanted to register only a musical composition, she should register with class PA and the Type of Work assigned would be "Music." If she later records the song, she can register this recording in class SR and the Type of Work assigned will be "Sound Recording."[60]

However, there are also works in class SR that record the Type of Work as Music.[61] When a registrant applies under class SR, the application asks her to specify what part of the recording she authored.[62] In these cases, the registrant checked the box for Music, but not for Sound Recording.[63]

As this example illustrates, no matter what form an applicant uses in registration, the Copyright Office takes care to match the Type of Work assigned to a registration to the component of the work being claimed.

Table 2 and 3 below show, by Type of Work, the number and percentage of registrations and the percentage of registrations published. The types with the most registrations are Text, Visual Material, Music, Sound Recording and Music, Serial, and Motion Picture. A work is considered published if the work has been distributed to the public by sale, transfer, lease, rental, or loan, or has been offered to be distributed to the

---

59. 37 C.F.R. § 202.3(b)(2)(ii)(C); *see also Help: Type of Work*, U.S. COPYRIGHT OFF., http://www.copyright.gov/eco/help-type.html (last modified July 26, 2011) ("For any registration that includes a claim in sound recording, select Sound Recording as the Type of Work, whether or not the sound recording is predominant.").

60. The following commercial example is typical: the musical album, *The 20/20 Experience (Deluxe Version)* by Justin Timberlake, was registered by Sony Music Entertainment in class SR. THE 20/20 EXPERIENCE (DELUXE EDITION) / BY JUSTIN TIMBERLAKE (#88765-47851-2), Registration No. SR0000717770 (Apr. 1, 2013). The Type of Work listed in the copyright registration record is Sound Recording. *Id.* Because Sony Music Entertainment only held the rights to the album recording and not the songs, it was only registering the recording. *See Help: Type of Work*, *supra* note 59 ("To register both the sound recording and the underlying work on a single application, the copyright claimant must own all rights in both works."). The authors and licensees of the musical compositions for the individual songs on the album, such as Mr. Timberlake, registered the individual compositions in class PA. *E.g.*, PUSHER LOVE GIRL, Registration No. PA0001843849 (Apr. 26, 2013). The Type of Work listed in the copyright records for these individual musical compositions is Music. *Id.*

61. *See, e.g.*, APPLES AND SYNTHESIZERS, Registration No. SR0000387319 (June 29, 2006) (showing a registration number with an SR prefix and listing Type of Work as Music).

62. *See Form SR*, U.S. COPYRIGHT OFF., http://www.copyright.gov/forms/formsr.pdf (instructing applicants to "mak[e] clear the nature of each author's contribution" to the recording).

63. The Public Information Office of the Copyright Office confirmed by email that this was their practice. E-mail from JS, *supra* note 57 (explaining that how the claimant describes their authorship determines the registration's administrative class). While there are numerous examples of works that are included in class SR and list Music as the Type of Work, copyright regulations do not appear to permit registrations in class SR that do not make a claim on the sound recording. *See* 37 C.F.R. § 202.3(b)(1)(iv). Nevertheless, the Copyright Office still accepts these registrations. *See* E-mail from JS, *supra* note 57 ("But that is not to say that other types of works, such as text and music, cannot be registered under class SR.").

public.[64] The percentage of works that are published varies widely across type, from 100% in Mask Work and 99.7% in Serial to only 5.7% in Dramatic Work. The next subpart will show that much of the variation in publication status is explained by the registrant being a firm, rather than an individual.

Table 2: Registrations by Type of Work

Type of Work	Number of Registrations	Percentage of All Registrations
Computer File	33,657	1.5%
Dramatic Work	96,858	4.2%
Kit	687	0.0%
Map	1,969	0.1%
Mask Work	1,026	0.0%
Motion Picture	166,439	7.2%
Music	294,082	12.7%
Serial	170,655	7.4%
Sound Recording	92,183	4.0%
Sound Recording and Music	194,866	8.4%
Sound Recording and Text	2,817	0.1%
Text	890,657	38.5%
Visual Material	370,271	16.0%
Total:	**2,316,167**	**100.0%**

64. 17 U.S.C. § 101 (2012); U.S. COPYRIGHT OFFICE, CIRCULAR NO. 1: COPYRIGHT BASICS 3–4 (2012), *available at* http://www.copyright.gov/circs/circ01.pdf.

Table 3: Publications by Type of Work

Type of Work	Percentage Published
Computer File	71.8%
Dramatic Work	5.7%
Kit	96.5%
Map	94.7%
Mask Work	100.0%
Motion Picture	81.7%
Music	28.1%
Serial	99.7%
Sound Recording	55.1%
Sound Recording and Music	20.1%
Sound Recording and Text	75.0%
Text	73.1%
Visual Material	57.3%
All:	**59.5%**

B. Who Is Registering?

Table 4 below presents, for each Type of Work, the percentage of registrations claimed by firms and the percentage claimed by individuals. As for firms, we include works produced by firms, works commissioned by firms as works made for hire, and works that were transferred to firms. In total, firms and individuals register works in close to equal rates (51.9% by firms and 48.1% by individuals). However, as Table 4 shows, these percentages vary across Types of Work. Computer File, Kit, Map, Mask Work, Motion Picture, and Serial are predominately registered by firms. Nearly two thirds of Sound Recording, Text, and Visual Material are registered by firms. Dramatic Work, Music, and Sound Recording and Music are predominately registered by individuals. The remainder, Sound Recording and Text, are relatively evenly split between individuals and firms. These percentages are consistent with notions of how accessible markets are to individuals. It is probably relatively difficult for an individual to become a supplier of motion pictures or serials, for example, and we see relatively few individuals registering these types of works.

These data fit with the observation that the production of multicomponent works is generally organized by firms, and that individual contributions to motion pictures can be commissioned by firms (who are the authors) as "works made for hire."[65]

Table 4: Registrations Claimed by Individuals and Firms

Type of Work	Number of Registrations	Percentage of Registrations Claimed	
		Individuals	Firms
Computer File	33,657	13.4%	86.6%
Dramatic Work	96,858	82.9%	17.1%
Kit	687	5.5%	94.5%
Map	1,969	7.0%	93.0%
Mask Work	1,026	2.1%	97.9%
Motion Picture	166,439	10.5%	89.5%
Music	294,082	70.4%	29.6%
Serial	170,655	1.5%	98.5%
Sound Recording	92,183	46.5%	53.5%
Sound Recording and Music	194,866	86.3%	13.7%
Sound Recording and Text	2,817	38.1%	61.9%
Text	890,657	52.0%	48.0%
Visual Material	370,271	34.1%	65.9%
Total:	**2,316,167**	**48.1%**	**51.9%**

Next, we look at how publication status differs between works claimed by individuals and works claimed by firms. This gives evidence about the differential behavior of individuals and firms. Additionally, it may provide suggestive evidence of the economic value of works registered by individuals and firms. Assuming the more valuable works are more likely to be commercialized and offered to the public, published works will on average be of higher quality and further along in their product development.

Table 5 below shows the publication status of works claimed by individuals and those claimed by firms. For example, of all Computer File registrations claimed by individuals, 42.4% are published, while of all Computer File registrations claimed by firms, 76.4% are published. As the Table shows, individuals tend to register unpublished works, while firms tend to register published works. This could mean that firms register works of higher market value, that individuals tend to register works earlier in

65. *See* 17 U.S.C. § 101 (defining a "work made for hire"); *see also id.* § 201(b) (stating that "the employer or other person for whom the work was prepared is considered the author").

their product cycle than firms, or some combination of the two.[66] It may be that both register at the end of the creative phase, but whereas production by firms is commonly followed by pre-planned commercial publication and distribution, individuals are more likely to still be looking for publication and distribution opportunities at the time they register their works. Additionally, individuals may register works before taking them to potential publishers as a means of establishing their rights over the work and deterring appropriation by the threat of enhanced remedies. In any case, claimants often take advantage of the statutory route, allowing them to register within three months after publication and have the effective registration date be considered as the date of publication for purposes of statutory damages and attorney's fees.[67]

Table 5: Publication Status by Individuals and Firms

Type of Work	Percentage of Registrations Published	
	Individual	Firm
Computer File	42.4%	76.4%
Dramatic Work	4.7%	10.5%
Kit	76.3%	97.7%
Map	59.9%	97.3%
Mask Work	100.0%	100.0%
Motion Picture	44.9%	86.0%
Music	11.2%	68.2%
Serial	95.6%	99.8%
Sound Recording	21.6%	84.2%
Sound Recording and Music	16.2%	44.5%
Sound Recording and Text	52.9%	88.6%
Text	56.1%	91.5%
Visual Material	34.1%	69.3%
Total:	**34.1%**	**83.0%**

66. We would like to infer something about a work's market value from whether it is published or unpublished, but currently, we have little evidence for this assumption.

67. *See* 17 U.S.C. § 412(2) (giving applicants a three-month period in which to register after the initial publication of a registered work).

Finally, Table 6 below shows the distribution of registrations by number of authors and number of claimants. The majority of registered works have a single author and a single claimant.

Table 6: Registrations by Number of Authors and Claimants

Number of Authors	Percentage of Registrations	Number of Claimants	Percentage of Registrations
1	87.9%	1	93.0%
2	11.2%	2	6.0%
3+	0.8%	3+	1.0%
Registrations:	2,169,203	**Registrations:**	2,181,440

C. When Are Works Registered?

This subpart provides evidence about when works are registered, relative to the date of creation and the date of publication. Generally, works are registered within one year of creation and within one year of publication.

Table 7 below shows the number of years between a work's creation and its subsequent registration. Almost 85% of registrations occur within two years of creation. Also, less than 5% of works are registered more than five years after they were created. While registration is often a good proxy for the date of creation, note that 15% of works are registered more than two years after they were created.

It is likely that the gap between creation and registration is slightly overstated. The copyright registration typically records only the year the work was created, not the day,[68] which leads to some works being assigned a one year gap between creation and registration when the gap was only a couple months. For example, if a work was created in December 2010 and registered in January 2011, it would be recorded as a one-year gap between creation and registration since only the year of creation is recorded. Almost 50% of the 554,965 works registered one year after creation were works registered in January, February, or March.

68. *See id.* § 409(7) (requiring the year the work was created in an application for copyright registration); *id.* § 410(a) (providing that issued registration certificates must contain information submitted in the application).

Table 7: Years between Creation and Registration

Time between Creation and Registration	Number of Registrations	Percentage of Registrations
0–1 Year	1,248,471	58.5%
1–2 Years	554,773	26.0%
2–3 Years	123,198	5.8%
3–4 Years	56,836	2.7%
4–5 Years	34,038	1.6%
5–10 Years	75,683	3.5%
11–20 Years	27,837	1.3%
21+ Years	13,692	0.6%
Total:	**2,134,528**	**100.0%**

Table 8 below refers to registrations of published works and shows the gap between the publication of a work and its registration. Registration is timely, with 54.6% registering a work within three months of publication and an additional 25.2% registering within one year. Note that registration within three months of publication makes statutory damages and attorney's fees available as remedies against infringements that commenced prior to the registration (but after the publication).[69] Also, over 95% of registered works were registered within five years of publication. Note that registration within five years of publication endows the certificate of registration with a presumption of validity.[70] The majority of registrants thus conform to the standards of prompt registration encouraged by the Copyright Act. "Published after Registered" marks the few works that were registered as published, but report a date of publication after the date of registration.

69. *See supra* note 22 and accompanying text.
70. *See supra* note 23 and accompanying text.

Table 8: Time between Publication and Registration

Time between Publication and Registration	Number of Registrations	Percentage of Registrations
Published after Registered	2,270	0.2%
Less than 3 Months	656,752	54.6%
Less than 1 Year	303,189	25.2%
1–2 Years	102,301	8.5%
2–3 Years	44,747	3.7%
3–4 Years	25,554	2.1%
4–5 Years	16,619	1.4%
5–10 Years	34,363	2.9%
11+	17,987	1.5%
Total:	**1,203,782**	**100.0%**

Figure 2 below shows the average registrations (2008–2012) by Type of Work and by month; there are no evident seasonal trends in the number of copyright registrations.

Figure 2: Mean Monthly Registrations by Type of Work

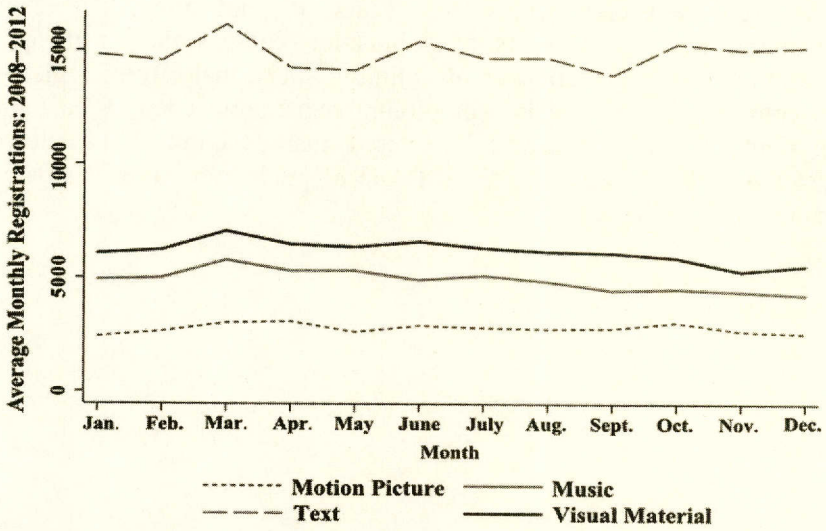


Figure 3 below shows a histogram of the author's age at the time the registered work was created. As the figure suggests, the mass of registrants create between the ages of 20 and 60, and productivity seems to be largely at the same level in this age range. But a different picture emerges when one breaks down the numbers by Type of Work.

Figure 3: Number of Registrations by Age

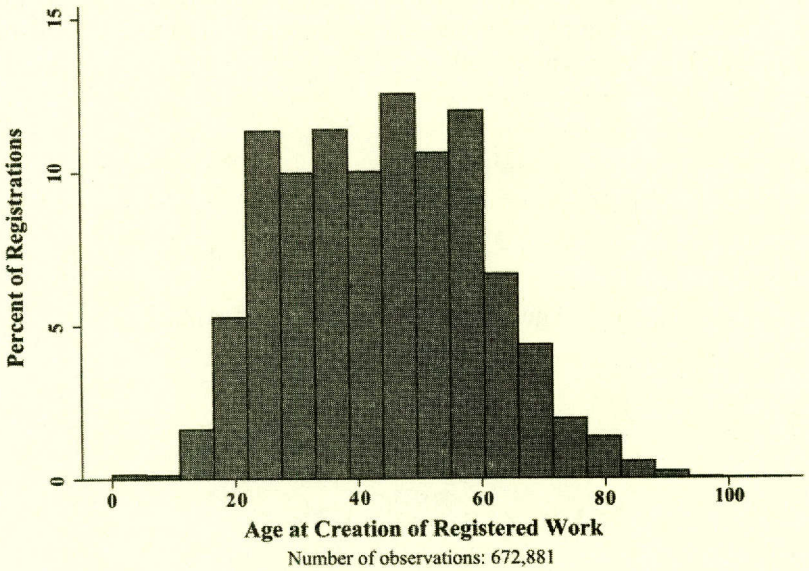


Figure 4 below shows the age distributions for different Types of Work (in the top panel) and for published and unpublished Texts (in the bottom panel).

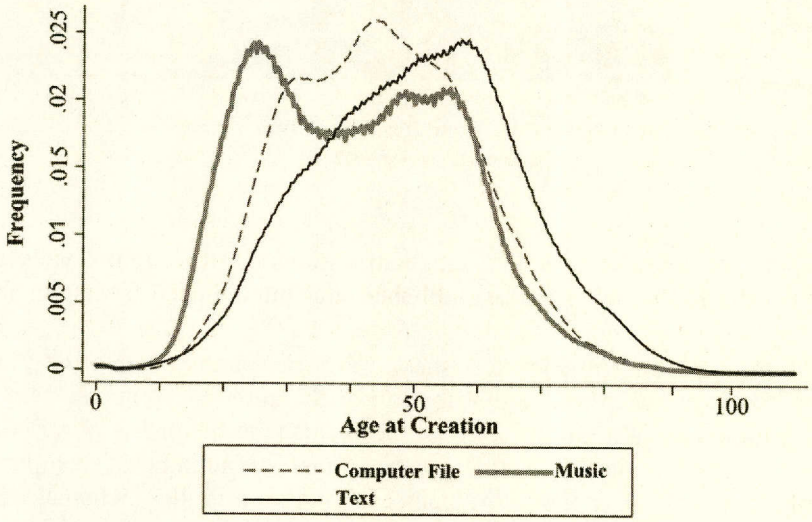
As the top panel in Figure 4 shows, different areas of creativity are characterized by different age distribution of the authors. Whereas Music shows a bimodal distribution in which the greater mass consists of authors in their early- and mid-20s, the greatest mass of authors of computer software consists of authors in their early- and mid-40s, whereas the greatest mass of the authors of literary works consists of authors in their late-50s.

The statistic concerning computer software may seem surprising, as software, according to popular belief, is often created by the younger generation. There may be sevearl ways to reconcile our data with such perception. First, it may be that the perception is inaccurate. Second, it may be that the perception is generally true, but that the younger generation does not tend to register its works. Lastly, the perception may be true, but it could be that the younger generation tends to create works for hire within

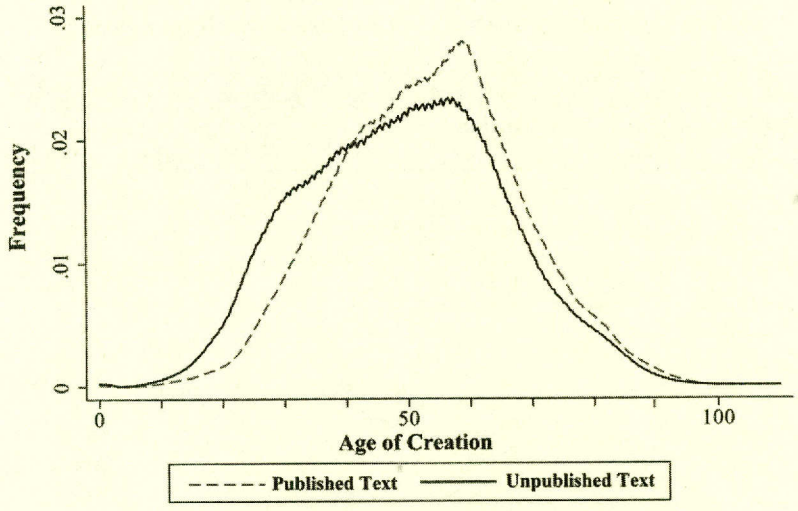
corporations or startups, whereas our statistics represent age distributions conditional on the fact that the work was created by the individual. It may be that software registrations by individuals tend to be driven by self-employed, experienced freelancers, for example.

The second panel in Figure 4 examines the age distribution of the authors of literary works according to their published status. It shows that authors of published works are generally older than the authors of unpublished works. This phenomenon may suggest that older, more experienced authors know their way in the market better or are more established, than younger, less experienced authors.

Figure 4: Age Distributions of Registrations



Distribution of works claimed by individuals.
Number of observations: 3,000 (Computer File), 134,525 (Music), 172,593 (Text)



Distribution of text works claimed by individuals.
Number of observations: 51,515 (Published), 121,078 (Unpublished)

D. Where Are Works Registered?

This subpart focuses on the geography of registration, using the 2,027,018 registrations with zip code information. Tables 9 below shows the Urbanized Areas with the most registrations and the most registrations per capita. "Urbanized Areas" are delineated by the U.S. Census Bureau and "consist of densely developed territor[ies] that contain 50,000 or more people."[71] Some of these results are driven by single firms. For example, the Charlotte, NC/SC Urbanized Area's presence at the top of the *Computer File* list is largely driven by a large number of IBM's registrations listing Charlotte, North Carolina as the address.

71. *Geographic Terms and Concepts - Urban and Rural*, U.S. CENSUS BUREAU, http://www.census.gov/geo/reference/gtc/gtc_urbanrural.html#ua (last modified Dec. 6, 2012). Urbanized areas listing multiple states (e.g., Charlotte, NC/SC) are given these names by the Census Bureau.

Table 9: Urbanized Areas with Most Total Registrations

Rank	Total Registrations				
	Computer Files	Motion Pictures	Music	Visual Material	Text
1	Charlotte, NC/SC	Los Angeles/ Long Beach/ Anaheim, CA	Los Angeles/ Long Beach/ Anaheim, CA	Los Angeles/ Long Beach/ Anaheim, CA	New York/ Newark, NY/NJ/CT
2	New York/ Newark, NY/NJ/CT	New York/ Newark, NY/NJ/CT	New York/ Newark, NY/NJ/CT	New York/ Newark, NY/NJ/CT	Los Angeles/ Long Beach/ Anaheim, CA
3	Los Angeles/ Long Beach/ Anaheim, CA	San Francisco/ Oakland, CA	Nashville-Davidson, TN	Miami, FL	Washington, DC/VA/MD
4	San Francisco/ Oakland, CA	Miami, FL	Miami, FL	Chicago, IL/IN	Chicago, IL/IN
5	Chicago, IL/IN	San Diego, CA	Atlanta, GA	San Francisco/ Oakland, CA	Philadelphia, PA/NJ/DE/ MD
6	Washington, DC/VA/MD	Atlanta, GA	Chicago, IL/IN	Seattle, WA	Boston, MA/NH/RI
7	Detroit, MI	Virginia Beach, VA	Washington, DC/VA/MD	Atlanta, GA	Miami, FL
8	San Jose, CA	Las Vegas/ Henderson, NV	Philadelphia, PA/NJ/ DE/MD	Philadelphia, PA/NJ/ DE/MD	Atlanta, GA
9	Seattle, WA	Dallas/ Fort Worth/ Arlington, TX	Dallas/ Fort Worth/ Arlington, TX	San Diego, CA	Baltimore, MD
10	Boston, MA/NH/RI	Boston, MA/NH/RI	Houston, TX	Boston, MA/NH/RI	San Francisco/ Oakland, CA

While Table 9 shows the cities with the most registrations, it does not portray how the registration of copyrights is distributed across the country. The remainder of this subpart provides a measure of the geographic concentration of copyright registrations: Lorenz curves.

Lorenz curves are typically used to represent income or wealth inequality,[72] but they can be used to assess any type of inequality or degree of concentration. We use Lorenz curves to graphically represent the geographic concentration of copyright registrations, how this differs by Type of Work, and whether the registration is claimed by an individual or firm. The question we are asking is whether each geographic area produces the same number of registrations, or whether registrations are concentrated in a few high-producing areas. Motion Pictures, Visual Material, and Computer Files are concentrated in relatively few places. Sound Recording and Music, Music, Dramatic Work, and Text are relatively dispersed across the country. Across all Types of Work, individual registrations are less concentrated than firm registrations.

Our geographic unit of analysis for the Lorenz curves is the Census Public Use Microdata Areas (PUMAs), which are delineated by the Census Bureau and contain at least 100,000 people.[73] Using the Missouri Census Data Center's 2000 MABLE/GEOCORR engine,[74] we match zip codes to PUMAs. The advantage of using the PUMA is that the number of people in each PUMA is much more homogeneous than the number of people per zip code.[75] Therefore, the bottom 10% of PUMAs roughly corresponds to 10% of the population.

---

72. *See* Joseph L. Gastwirth, *The Estimation of the Lorenz Curve and Gini Index*, 54 REV. ECON. & STAT. 306, 306 (1972) ("Most of the measures of income inequality are derived from the Lorenz curve . . . .").

73. *Public Use Microdata Areas (PUMAs)*, U.S. CENSUS BUREAU, http://www.census.gov/geo/reference/puma.html (last modified Jan. 23, 2014).

74. *MABLE/Geocorr12: Geographic Correspondence Engine*, MO. CENSUS DATA CENTER, http://mcdc.missouri.edu/websas/geocorr2k.html (last modified Nov. 19, 2013).

75. *Compare Zip Code Statistics*, U.S. CENSUS BUREAU, http://www.census.gov/epcd/ www/zipstats.html ("ZIP codes are defined at the convenience of the U.S. Postal Service and may change from time to time."), *with Final Public Use Microdata Area (PUMA) Criteria and Guidelines for the 2010 Census and the American Community Survey*, U.S. CENSUS BUREAU 1, http://www.census.gov/geo/reference/pdfs/puma/2010_puma_guidelines.pdf (stating that each PUMA must meet a minimum population of 100,000).

Figure 5: Lorenz Curves by Type of Work

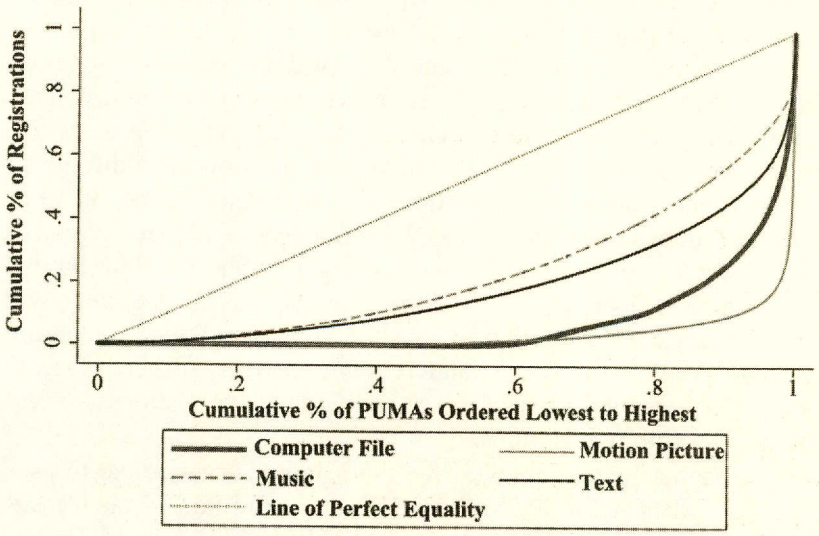


Figure 5 shows the Lorenz curves for four types of works. The curves show the concentration of copyright registrations across PUMAs. For example, the Computer File curve shows that the bottom 80% of PUMAs produce approximately 10% of Computer File copyright registrations, or equivalently, that the top 20% of PUMAs produce 90% of Computer File registrations. The more bent a curve is, the more unequal the production of copyright registrations is across PUMAs. If each PUMA registered the same number of works, the Lorenz curve would be straight, upward sloping, and equal to the "line of perfect equality."

Figure 5 shows that Music is the least concentrated geographically, followed by Text, Computer Files, and then Motion Pictures. For Motion Pictures, 90% of registrations can be traced to only 5% of the PUMAs.

A numerical measure of the concentration of copyright registrations can be calculated as the area between the line of perfect equality and the Lorenz curve, divided by the total area below the line of perfect equality. This measure, known as the Gini coefficient, takes a value between 0 and 1, with the coefficient equal to 0 if there is perfect equality in copyright registrations across PUMAs, and the coefficient close to 1 if per capita registrations are highly concentrated in a small number of PUMAs.[76]

76. *See Measuring Inequality*, WORLD BANK, http://go.worldbank.org/3SLYUTVY00 ("The coefficient varies between 0, which reflects complete equality and 1, which indicates complete inequality (on person has all the income or consumption, all others have none).").

Table 10 shows the Gini coefficients for the different types of works. The most concentrated Type of Work is Motion Picture, followed by Visual Material, Sound Recording, and Computer File. Sound Recording and Music, Music, Dramatic Works, and Texts are relatively dispersed. Additionally, it shows the Gini coefficients for only those works registered by firms and only those registered by individuals. Across all Types of Works, works registered by individuals are less concentrated than works registered by firms.

Table 10: Gini Coefficients by Type of Work and Claimant Type

Type of Work	Gini Coefficient		
	All	Individuals	Firms
Computer File	0.698	0.401	0.725
Dramatic Work	0.613	0.596	0.66
Motion Picture	0.897	0.575	0.922
Music	0.537	0.443	0.836
Sound Recording	0.72	0.516	0.876
Sound Recording and Music	0.494	0.482	0.606
Sound Recording and Text	0.676	0.486	0.766
Text	0.631	0.438	0.849
Visual Material	0.725	0.572	0.841
Total:	**0.666**	**0.501**	**0.787**

Table 11 shows the nation where the work was first published, for works first published outside the United States. Of all works, 95.64% are first published within the United States and 4.34% are published outside the United States. All nations with less than 100 registrations during our time period of 2008–2012 are classified as "Other." The most common nations of first publication, other than the United States, are the United Kingdom (leading by a big margin), Canada, Germany, China, South Korea, and Japan.

Table 11: Nation of First Publication (outside of U.S.)

Nation	Percentage	Nation	Percentage
Argentina	0.330%	Italy	1.792%
Australia	2.566%	Japan	5.605%
Austria	0.237%	South Korea	5.999%
Belgium	0.326%	Mexico	2.455%
Brazil	0.618%	Netherlands	1.037%
Canada	8.104%	Norway	0.218%
China	6.575%	Puerto Rico	1.007%
Colombia	0.411%	Russia	0.672%
Denmark	0.204%	Singapore	0.437%
England	2.453%	Spain	1.450%
Finland	0.300%	Sweden	0.522%
France	3.748%	Switzerland	0.515%
Germany	6.755%	Taiwan	0.807%
Hong Kong	1.215%	Thailand	0.387%
India	1.279%	United Kingdom	36.856%
Ireland	0.307%	Vietnam	0.191%
Israel	0.402%	Other	4.220%
Total Registrations Outside United States:			**54,008**

V. Implications

Our main purpose in this Article is to describe the information latent in individual copyright registrations. We reserve policy and normative analysis to future work, after we gather data for additional years. In this Part we wish to merely suggest ways in which our findings and data set shed light on existing literature and could serve to inform lawmaking.

A. Use of Registration Data in Copyright Lawmaking

Most agree that the fundamental goal of copyright law is to strike a balance between incentivizing authors to create, on the one hand, and disseminating creative works widely to the public, on the other. The difficulty is that providing greater incentives to create is done by way of allowing authors greater control over content (e.g., by extending the duration of copyrights or the set of exclusive rights under authors' control),

which harms the social interest in disseminating creative works widely.[77] Lawmakers' difficult task is to find the optimal balance between promoting incentives and access.[78]

Registration records provide valuable information to lawmakers wishing to strike this balance optimally. At a minimum, registration records can be looked at in order to examine the degree to which various copyright reforms were associated with enhanced incentives to create among registrants and whether additional reforms are needed.

Take, for example, the doctrine on copyright duration, a topic which Congress has revisited repeatedly over the years. At the founding, authors could enjoy up to twenty-eight years of copyright protection.[79] The maximal term was extended to forty-two years in 1831 and then to fifty-six years in 1909.[80] In 1976 Congress set the basic term for individual authors at life plus fifty years[81] and extended it again in the Copyright Term Extension Act of 1998 (CTEA) to life plus seventy years.[82] Were these extensions warranted, and are additional ones needed?

For policy makers wishing to strike an optimal incentive–access tradeoff, it should be apparent that any extension increases the incentive to create, but at decreasing rates. Because of discounting to present value, the longer copyright protection already is, the smaller the added incentive effect of extending it by a set number of years. Can one determine, as a theoretical matter, what is the optimal term? While many have argued against the wisdom of the last extension (and the one before it)[83] based on the fact that it adds a negligible incentive, a few countered, arguing that the theoretical argument against the extension is not conclusive.[84] Where

---

77. Eldred v. Ashcroft, 537 U.S. 186, 245–48 (2003) (Breyer, J., dissenting) (arguing that the author's copyright monopoly must be limited to ensure the work can be disseminated in the future).

78. *See* William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326 (1989) ("Striking the correct balance between access and incentives is the central problem in copyright law.").

79. Act of May 31, 1790, ch. 15, § 1, 1 Stat. 124, 124; *Eldred*, 537 U.S. at 194 (2003).

80. Act of Mar. 4, 1909, ch. 320, §§ 23–24, 35 Stat. 1075, 1081; Act of Feb. 3, 1831, ch. 16, §§ 1–2, 4 Stat. 436, 436–37; *Eldred*, 537 U.S. at 194.

81. Act of Oct. 19, 1976, Pub. L. No. 94-553, § 302, 90 Stat. 2541, 2572 (1976) (codified as amended at 17 U.S.C. § 302 (2012)); *Eldred*, 537 U.S. at 194–95.

82. Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, § 102, 112 Stat. 2827, 2827–28 (codified as amended at 17 U.S.C. §§ 301–304); *Eldred*, 537 U.S. at 195–96.

83. *See, e.g.*, Stephen Breyer, *The Uneasy Case for Copyright in Books: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 323–29 (1970) (arguing against extending the copyright term as a part of the then-forthcoming Copyright Act of 1976).

84. *Compare Eldred*, 537 U.S. 186 app. at 267–69 (2003) (Breyer, J., dissenting) (concluding, based on present-value calculation, that the incentive effect of CTEA's extension is negligible), *and* Brief of George A. Akerlof et al. as Amici Curiae Supporting Petitioners at 3, Eldred v. Ashcroft, 537 U.S. 186 (2003) (No. 01-618) ("[I]t is highly unlikely that the economic benefits from copyright extension under the CTEA outweigh the additional costs."), *with* Stan J. Liebowitz & Stephen Margolis, *Seventeen Famous Economists Weigh in on Copyright: The Role of Theory,*

theoretical arguments can be made on both sides of the debate, data on the actual effects of copyright reforms can help lawmakers determine which is more plausible. In the same way, other copyright reforms—such as to the set of exclusive rights, exemptions, and remedies—can be assessed and reformed.[85]

Our data can further inform lawmakers' duration determination. Since the founding, a basic feature of our copyright laws has been that the duration provided was generally uniform across different types of creative works, applying, in effect, a one-size-fits-all rule.[86] But this turns out not to be the case in practice. As Figure 4 above shows, authors of different genres tend to create at different ages: authors of music tend to be younger than authors of computer programs, who tend to be younger than authors of literary works. Our data reveal that copyright law gives different effective protection to different types of works. Congress then may wish to consider whether this is desirable or not, and these data can be the basis for setting different durations for different subject matters, if that were deemed desirable.

B. Inference for the Unregistered Iceberg

The statistics we report here reflect registration patterns at the Copyright Office, rather than the world of creativity writ large. The population of copyrighted works is greater than registered ones. To enjoy copyright protection, a work does not need to be registered.[87] Rather, it need only be fixed in a physical object and contain a minimal amount of creativity.[88] Thus, the snapshot we take of creative patterns relates to registered works, not to everything that is created in society. Every day, millions of emails, tweets, and messages are sent; blog posts and online articles are posted; still photos and videos are taken with cameras and cellphones; the vast majority of all of these are likely copyright protected. Yet, the vast majority of these are not registered, be it because many are not created for profit, or because the cost and trouble of registration outweighs the creator's expected benefit. What does it mean for our statistics?

There is no doubt that many creative works would still be created without the benefits of copyright protection. Many create for non-pecuniary reasons, such as curiosity, an inner need to create or be heard, the

---

Empirics, and Network Effects, 18 HARV. J.L. & TECH. 435, 439–40 (2005) (suggesting that even a small enhancement in incentives to create can tip potential authors' decisions to become authors and thus increase the supply of creative works).

85. A few scholars have done that, but as we shall explain, they relied on problematic data. *See infra* subpart V(C).

86. *See supra* notes 79–82.

87. *See supra* subpart II(A).

88. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991).

desire to achieve fame or better the world. Many who create for pecuniary reasons would still create in a no-copyright world, using alternative appropriation mechanisms such as secrecy, contracts, and technological measures that prevent copying. Even before the birth of copyright, people wrote stories, composed music, made paintings and sculptures, and designed architecture, importantly through patronage. What the copyright system does, however, is mainly provide a market entitlement to creators that would allow them to exclude non-payers from accessing their works,[89] and thus enhances financially motivated creators' ability to appropriate the returns. Financially motivated creators are expected to use the copyright system if the additional benefits that it secures to them above and beyond all other background incentives outweighs their private cost of using it. Registration records thus likely provide a proxy for the types of creators who, and works that, benefit the most financially from the copyright system.

C. *Prior Literature's Use of Problematic Data*

While this Article is the first to gather and analyze data from individual registration records, we are not the first to study registrations at the Copyright Office. Importantly, two prior studies examined aggregate copyright registrations counts.[90] However, the data they use suffer from important shortcomings.

Landes and Posner and Ku, Sun, and Fan took the number of registrations to be a proxy for the overall level of creativity.[91] They examined whether several changes to copyright law were associated with a statistically significant increase in registrations.[92] As data, both studies use registration counts from the annual reports of the Copyright Office.[93] Each year, the Copyright Office reports the overall number of registrations that year, as well as registration counts by, for example, category of work and published or unpublished status.[94]

A limitation of the annual reports as a data source stems from the fact that they are written in order to let readers know what the Copyright Office

89. *See* 17 U.S.C. § 106 (2012) (listing the exclusive rights of copyright owners).

90. *See generally* LANDES & POSNER, *supra* note 7; Raymond Shih Ray Ku, Jiayang Sun & Yiying Fan, *Does Copyright Law Promote Creativity? An Empirical Analysis of Copyright's Bounty*, 62 VAND. L. REV. 1669 (2009).

91. *See* LANDES & POSNER, *supra* note 7, at 234 (stating that registrations function as a proxy for "the number of copyrighted works"); Ku, Sun & Fan, *supra* note 90, at 1689 (describing how the authors used copyright registrations "as a proxy for new works created").

92. LANDES & POSNER, *supra* note 7, at 246 tbl.8.1; Ku, Sun & Fan, *supra* note 90, at 1689–92.

93. Ku, Sun & Fan, *supra* note 90, at 1689; *see also* LANDES & POSNER, *supra* note 7, at 234 & n.35.

94. *See, e.g.*, 2011 COPYRIGHT OFFICE REPORT, *supra* note 8.

has done in the fiscal year to which the report pertains. As far as registrations are concerned, the numbers reported reflect the number of claims that the Copyright Office had successfully processed rather than the number of applications it received. While in some cases the numbers are congruent, in other cases they may diverge substantially.

For example, implementation of a re-engineering program at the Copyright Office in 2008 resulted in a larger than normal backlog of claims in process.[95] The average registration processing time that was as short as 71 days in 2007, changed to 163 days in 2008, 309 days in 2009, 277 in 2010, and 94 days in 2011.[96] Whereas the Copyright Office successfully processed an average of about 555,000 claims per year in the preceding five years, it processed only about 233,000 in 2008 and 382,000 in 2009.[97] Then, reducing the backlog, the Copyright Office processed 636,000 claims in 2010 and 670,000 in 2011.[98]

These fluctuations in processing time may have affected some of the results of both studies. For example, Landes and Posner express surprise that the coefficient on the dummy variable for the Copyright Act of 1976 came out negative and significant, as they expected that the Act—which allowed for the registration of unpublished works—would increase the number of registrations.[99] As they note, the negative coefficient was affected by a substantial drop in the number of registrations in 1978, and becomes positive and significant if one were to treat 1979 (rather than 1978) as the first effective year of the 1976 Act.[100] Indeed, the low number of registrations reported in the annual report for 1978 does not reflect a drop in applications, but rather the creation of a backlog at the Copyright Office caused by slower processing times because of the need to adapt to the new Copyright Act.[101] As this example illustrates, these studies' methodology may find no effect, or even a negative effect, associated with a law that actually increased incentives to create.

A better statistic for measuring copyright law reforms' effect on incentives to create would seem to be the *Date of Registration* field, which

95. *Id.* at 43 n.5.

96. *Id.* at 21 fig.

97. *Id.* at 43 tbl.

98. *Id.*

99. LANDES & POSNER, *supra* note 7, at 247.

100. *Id.*

101. *See* 1978 LIBR. CONGRESS ANN. REP. 80 ("[T]he Copyright Office . . . could not have foreseen the extraordinary crush of work that immediately confronted its staff from the beginning of revision implementation in January 1978. The unfamiliarity of the public with the new law and the new application forms combined to create a backlog of cases . . . .").

is the date on which a complete application was submitted to the Copyright Office.[102]

An alternative, and perhaps better, proxy for levels of creativity might be the date of creation rather than the date on which the application was submitted to the Copyright Office. Registration comes at a point after the decision to create has already been made. In the case of registration of published works, the creative process has been completed. If the question is what effect copyright law has on the decision to create, the relevant statistic is the date of creation, information that is available, with some limitations, in the Copyright Office Catalog.[103] As we show in Table 6 above, nearly 60% of works are registered the year they are created, and 25% more within the following year; the remaining 15% of works are registered two or more years later. Such differences show that the date of registration is an imperfect, but reasonably good proxy for the date of creation. Though date of creation may seem superior, date of registration has the following advantages: (1) the date of registration is recorded, while in most cases creation only records the year; (2) registration is determined by the Copyright Office, while date of creation is self-reported by registrants; and (3) every registration date is recorded, while some are missing the date of creation. While aggregate statistics on the dates of the application and creation were not easily available to previous researchers, they are readily available in our data set.

D. The Complex Relation Between Registration Counts and the Number of the Underlying Works

A complexity that needs be acknowledged in studies that involve registration is that there is no simple one-to-one relationship between the number of registrations and the number of works registered therein. In some cases, copyright regulations allow what might be considered multiple works to be registered with one application (resulting in one registration record) as long as the works are published together and have the same copyright claimant.[104] Musical albums are commonly registered this way.[105] However, because there may, or may not,[106] be multiple claimants

---

102. *See* 37 C.F.R. § 202.4 (2013) (establishing the effective date of registration as the day on which the completed application is received by the Copyright Office); U.S. COPYRIGHT OFFICE, CIRCULAR NO. 1: COPYRIGHT BASICS, *supra* note 64, at 10 (same).

103. The data are self-reported and so not available for every work. *See supra* note 54 and accompanying text. Only the year of creation is recorded, not the day or month. *See supra* note 68 and accompanying text.

104. 37 C.F.R. § 202.3(b)(4)(i).

105. *See supra* note 60.

106. If a single person owned both the sound recording and all the musical compositions in an album, she could register the entire creative contents of the album with one registration. 37 C.F.R. § 202.3(b)(4)(i).

to the contents of a single album, and because the contents of an album are sometimes released separately, different musical albums can result in different numbers of registrations (even if they have the same number of songs).

Other regulations allow photographs to be registered as a group as long as all of them are published in a single calendar year: a single registration could relate to one photograph or thousands.[107] Similarly, serials and newspapers may be registered individually or in groups consisting of no more than three months of publications within one calendar year for Serials[108] or one month for Newspapers.[109]

Other complexities arise when content producers chose to register separately contents contained in a larger work. A registration of a motion picture would cover all the images, words, and sounds contained in the film.[110] However, a studio may choose to separately register the various contents of a film, for example its screenplay or score. It may also register individual fictional character designs separately.[111] Counting registrations also gives equal weight both to marketing materials and to the works they promote. For instance, movie studios often register film trailers and posters.[112] As a result, different films may result in different numbers and kinds of registrations of their underlying contents.

The complexities in the data do not mean that they are uninformative. If, for example, the average number of registrations per work is constant over time, the existence of between-work variation would not be a great cause for concern. Further, the fact that more valuable works result, on average, in a greater number of registrations per work may be a good thing: by giving more weight (in terms of registration counts) to more valuable and successful works, it can act as a better proxy for the level of creative output.

---

107. *See* 37 C.F.R. § 202.3(b)(10) (describing group registration of published photographs).

108. *See id.* § 202.3(b)(6).

109. *See id.* § 202.3(b)(9).

110. *See* U.S. COPYRIGHT OFFICE, CIRCULAR NO. 45: COPYRIGHT REGISTRATION FOR MOTION PICTURES, INCLUDING VIDEO RECORDINGS 1 (2014).

111. For instance, prior to the release of their animated movies, Disney and its subsidiary Pixar register as unpublished visual material the model sheets—drawings—of the characters in the films. *See* Oliar & Matich, *supra* note 14, at 1098 n.138 (identifying this as a general practice of Disney and speculating that Disney does this to provide copyright protection prior to release without having to register and deposit the work). The movie *Brave*, for example—a Pixar film—resulted in over 20 such registrations. *See, e.g.*, BRAVE - ANGUS MODEL SHEET (4), Registration No. VAu001093274 (Feb. 23, 2012); BRAVE - MERIDA MODEL SHEET (7), Registration No. VAu001089648 (Dec. 5, 2011).

112. *See, e.g.*, SKYFALL: DOMESTIC TRAILER #1, Registration No. PA0001797690 (June 8, 2012); SKYFALL: TEASER POSTER #1, Registration No. VA0001817318 (June 1, 2012).

VI. Conclusion

This paper provides the first look at patterns of copyright registrations in the United States by using data from individual registration records. It describes who is registering (firms or individuals), what is being registered (by category of work and published status), when works are registered (as compared to their creation and publication dates, and when in the lives of the authors), and where registered works were created. We show substantial variation in the data across types of authors and types of creative works. Comparatively, whereas firms tend to cluster geographically and register published works, audiovisual works, serials, and computer files, individuals tend to create at geographically dispersed locations, and register unpublished, musical and dramatic works.

We have shown that our data, extracted from individual registration records, are more informative for policy analysis than those previously relied upon, which were extracted from the annual reports of the Copyright Office. We hope that our methodology, data set, and analysis will help advance scholarly, policy, and legislative work wishing to use registration data as a way to assess the effects of past copyright laws on creativity and to reform the law going forward.

Appendix: Data

The data for this study were gathered from the U.S. Copyright Office's online, searchable database of copyright registrations.[113] We use a program which systematically downloads registrations 2008–2012. We drop Preregistrations and Recorded Documents, and also any work that does not have a Registration Number or Date of Registration.[114] Our final data set consists of 2,316,167 registrations.[115] When, in the tables above, there are fewer observations, it is because some registrations are missing entries for certain fields. The remainder of the data appendix details how we create variables from the text available in the copyright registration records.

The variables "Type of Work," "Registration Date," "Date of Creation," and "Date of Publication" are explicitly recorded in copyright registrations.[116] Type of Work indicates whether the registered work is Music, a Motion Picture, Text, or one of a number of other categories, as discussed in the text above.[117] "Published" indicates whether the work has been distributed to the public by sale, transfer, lease, rental, or loan, or has been offered to be distributed to the public.[118] Date of Publication and Date

---

113. *Database Name: Copyright Catalog (1978 to Present)*, *supra* note 47.

114. For a discussion on preregistration, see generally Oliar & Matich, *supra* note 14.

115. There are small differences between the number of registrations in our sample and the number of registrations resulting from a search of the online database. Some of the discrepancy may have resulted from limitations imposed by the website for days with more than 10,000 registrations or from our dropping of Preregistrations and Recorded Documents. Some of the difference is explained by the lack of CSN Group Serial Registrations in our sample. CSN registrations aggregate serial registrations over a year of publication. While the serials are assigned individual registration numbers and effective dates of registration, the Catalog does not index the individual registrations by date. Because our program collects registrations by date, we did not collect data on the CSN registrations. The CSN registration program has been discontinued, though there are CSN registrations in every year of our sample. *See generally CDS Announcement: Changes to Copyright Serial Registrations*, LIBR. OF CONGRESS, http://www.loc.gov/cds/notices/copyright091204.pdf. Finally, our data were downloaded during January and February 2014. The Catalog is constantly changing as the Copyright Office makes corrections or adds delayed registrations. Consequently, if this download were done at a different date, the numbers would be slightly different. However, the differences would almost certainty have little to no effect on our findings (We thank Robert Brauneis for drawing our attention to these final two points). Ultimately, our average deviation from the number in the online Catalog is less than 0.5% of the mean registrations in a day.

116. *See supra* Figure 1; *see also* 17 U.S.C. § 410(d) (2012) (defining the effective date of registration as that on which the claimant completed all registration prerequisites, including a valid application, deposit, and fee).

117. *See generally Help: Type of Work*, *supra* note 59 (describing the Type of Work that may be registered with the Copyright Office). The Copyright Office also administers the preregistration of copyrighted works and the registration of vessel hulls, but these registrations are not analyzed in this Article. Preregistrations are analyzed in Oliar & Matich, *supra* note 14. Vessel-hull and integrated-circuit design registrations are relatively few in number (a few tens or hundreds a year, respectively) and are not at the core of copyright protection.

118. *See supra* note 64 and accompanying text.

of Creation are the dates when the work was published and created, respectively.[119]

We constructed the variables "Firm," "Individual," "Number of Authors," "Number of Claimants," "Age at Creation," and "Location" by systematically searching through the text of the copyright registrations.

Firm/Individual: The Firm variable signifies whether the registration is claimed by a firm or an individual. Our goal is to distinguish between authors and people or firms to whom the copyright has been transferred. Whether the claimant is an individual or firm is not requested by the Copyright Office at the time of registration, but is discernible in most cases by looking at the name of the copyright claimant. We search through the text of the "Copyright Claimant" field and assign a copyright registration to a firm if the Copyright Claimant field contains any of the following phrases in any form: "inc," "llc," "corp," "publish," "Music," "ltc," "llp," "transfer," "company," "ltd," "association," "co.," and "dba." "Transfer" is included as a keyword because it indicates anyone who has purchased a copyrighted work from another. Additionally, we assign a registration to a firm if the "Authorship on Application" field contains "employer," as it would in "employer for hire." A registration is marked as being claimed by an Individual if it is not marked as a Firm. We will misclassify any firm that does not have one of the keywords in its name, but these seem to be rare.

Number of Authors/Number of Claimants: The number of authors is determined by counting the occurrences of "Authorship" in the Authorship on Application field. Each author is listed separately after "Authorship." Occasionally, one author will list himself multiple times, in which case we over count the number of authors. The number of claimants is determined by counting the occurrences of "Address" in the Copyright Claimant field. Each claimant lists an address.

Age at Creation: Year of birth is extracted from the "Names" field (for the registrants who report it). Age of Creation is the difference between the Date of Creation and the year of birth.

Location: The address (zip code) of the copyright claimant is extracted from the Copyright Claimant field visible in Figure 1.[120] For registrations in our sample, 88% have a zip code. In the few cases where multiple addresses are present (e.g., in a case of multiple claimants), we take the address listed last. We link zip codes to Zip

119. 17 U.S.C. § 409.

120. The claimant may be either the author of the work or "[a] person or organization that has obtained ownership of all rights under the copyright initially belonging to the author." 37 C.F.R. § 202.3(a)(3) (2013); *Privacy: Copyright Public Records*, U.S. COPYRIGHT OFF., http://www.copyright.gov/help/faq/faq-privacy.html (last modified Nov. 10, 2010).

Code Tabulation Areas (ZCTAs)[121] using the Missouri Census Data Center's MABLE/GEOCORR engine[122] to generate a weighted mapping to match zip codes to Census ZCTAs. For Table 8, these zip codes are then matched to Urbanized Areas from the U.S. Census.[123] For the Lorenz curves and Gini coefficients in Figure 5 and Table 6, the zip codes from the copyright registration are matched to Census Public Use Microdata Areas, again using the MABLE/GEOCORR engine. A small percentage of observations cannot be matched to either ZCTAs or PUMAs using the recorded zip code.

121. United States Postal Service (USPS) zip codes are delineated to meet the operational requirements of the USPS, and consequently change more frequently than every ten years. ZCTAs are created by the Census Bureau to be a more stable version of USPS zip codes. *ZIP Code™ Tabulation Areas (ZCTAs™) Frequently Asked Questions*, U.S. CENSUS BUREAU, https://www.census.gov/geo/reference/zctafaq.html (last modified Dec. 11, 2013).

122. *See Master Area Geographic Glossary of Terms: 2012 Edition*, MO. CENSUS DATA CENTER, http://mcdc.missouri.edu/websas/maggot12.shtml (last modified Nov. 19, 2013) (describing special Census Bureau-created geography units containing at least 100,000 people).

123. *2010 Census Urban and Rural Classification and Urban Area Criteria*, U.S. CENSUS BUREAU, http://www.census.gov/geo/reference/ua/urban-rural-2010.html (last modified July 22, 2013).

JAMAIL CENTER FOR LEGAL RESEARCH
TARLTON LAW LIBRARY
THE UNIVERSITY OF TEXAS SCHOOL OF LAW

The Tarlton Law Library Oral History Series features interviews with outstanding alumni and faculty of The University of Texas School of Law.

Oral History Series

No. 1 - *Joseph D. Jamail, Jr.* 2005. $20
No. 2 - *Harry M. Reasoner* 2005. $20
No. 3 - *Robert O. Dawson* 2006. $20
No. 4 - *J. Leon Lebowitz* 2006. $20
No. 5 - *Hans W. Baade* 2006. $20
No. 6 - *James DeAnda* 2006. $20
No. 7 - *Russell J. Weintraub* 2007. $20
No. 8 - *Oscar H. Mauzy* 2007. $20
No. 9 - *Roy M. Mersky* 2008. $25

Forthcoming:

Gloria Bradford, Patrick Hazel, James W. McCartney, Michael Sharlot, Ernest E. Smith, John F. Sutton, Jr.

Other Oral Histories Published by the Jamail Center for Legal Research

Robert W. Calvert (Texas Supreme Court Trilogy, Vol. 1). 1998. $20

Joe R. Greenhill, Sr. (Texas Supreme Court Trilogy, Vol. 2). 1998. $20

Gus M. Hodges (Tarlton Law Library Legal History Series, No. 3). 2002. $20

Corwin Johnson (Tarlton Law Library Legal History Series, No. 4). 2003. $20

W. Page Keeton (Tarlton Legal Bibliography Series, No. 36). 1992. $25

Jack Pope (Texas Supreme Court Trilogy, Vol. 3). 1998. $20

Order online at http://tarlton.law.utexas.edu/ click on Publications
or contact Publications Coordinator,
Tarlton Law Library, UT School of Law,
727 E. Dean Keeton St., Austin, TX 78705

phone (512) 471-6228; *fax* (512) 471-0243;
email tarltonbooks@law.utexas.edu

THE UNIVERSITY OF TEXAS SCHOOL OF LAW PUBLICATIONS

What the students print here changes the world

Journal	domestic/foreign
Texas Law Review http://www.TexasLRev.com	$47.00 / $55.00
Texas International Law Journal http://www.tilj.org	$45.00 / $50.00
Texas Environmental Law Journal http://www.texenrls.org/publications_journal.cfm	$40.00 / $50.00
American Journal of Criminal Law http://www.ajcl.org	$30.00 / $35.00
The Review of Litigation http://www.thereviewoflitigation.org	$30.00 / $35.00
Texas Journal of Women and the Law http://www.tjwl.org	$40.00 / $45.00
Texas Intellectual Property Law Journal http://www.tiplj.org	$25.00 / $30.00
Texas Hispanic Journal of Law & Policy http://www.thjlp.org	$30.00 / $40.00
Texas Journal On Civil Liberties & Civil Rights http://www.txjclcr.org	$40.00 / $50.00
Texas Review of Law & Politics http://www.trolp.org	$30.00 / $35.00
Texas Review of Entertainment & Sports Law http://www.tresl.net	$40.00 / $45.00
Texas Journal of Oil, Gas & Energy Law http://www.tjogel.org	$30.00 / $40.00

Manuals:

The Greenbook: Texas Rules of Form 12th ed. ISBN 1-878674-08-0

Manual on Usage & Style 11th ed. ISBN 1-878674-55-2

To order, please contact:

The University of Texas School of Law Publications

727 E. Dean Keeton St.

Austin, TX 78705 U.S.A.

Publications@law.utexas.edu

ORDER ONLINE AT:

http://www.texaslawpublications.com

* * *

* * *

* * *

* * *

* * *

* * *

* * *


TEXAS
TLR
LAW REVIEW