Texas Intellectual Property Law Journal

Intellectual Property Law Section of the State Bar of Texas
The University of Texas School of Law

Vol. 22, No. 1, Pages 1 to 108, 2013

TEXAS INTELLECTUAL PROPERTY LAW JOURNAL

The University of Texas School of Law

Volume 22 2013 Number 1

ARTICLES

Prepared at the University of Texas School of Law (U.S. ISSN #1068-1000)

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Volume 22 | 2013 | Number 1

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Patenting Thoughts The Computer Implementation of a Mental Process: Insufficient to Overcome § 101's Inventive Concept Requirement

J. Ryan Lawlis*

I. Introduction

Since the first commercial use of the computer some sixty years ago,[1] federal courts have struggled to define a computer's relevance to the patentability of a pro-

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[1] Diamond v. Diehr, 450 U.S. 175, 194 n.1 (1981) (Stevens, J., dissenting) ("ENIAC, the first general purpose electronic digital computer, was built in 1946. Unlike modern computers, this machine was externally programmed; its circuitry had to be manually rewired each time it was used to

cess or method.[2] In that time, the Supreme Court has offered broad guidance to the lower courts, and the CAFC has responded with an attempt to use that guidance to assemble an explicit test.[3] This debate has led to over a decade of computer-related inventions being taken on a roller coaster ride in and out of eligibility. Most recently, the CAFC granted a request for rehearing en banc on this issue, and has requested briefing on specific questions regarding computers and patentable subject matter, in order to create a test tailored specifically to certain computer-implemented claims.[4] Because it may present a new test of patentability specifically for these computer-implemented claims, the opinion that the court creates will significantly impact the progress and industry of the internet generation.

This paper will analyze the questions presented by the CAFC in *CLS Bank International* and suggest the appropriate test. In Part I, it will present relevant history of subject matter eligibility. In Part II, it will address the special problem of uncertainty in patent litigation. In Part III, it will present a solution in the form of a "mental process" exclusion, or "inventive concept" requirement, for patent-eligible subject matter. In Part IV, it will apply this solution to the questions presented by the CAFC in *CLS Bank International.*

II. The Development of Patent-Eligible Subject Matter

Defining the subject matter eligible for patent protection is hardly a new discussion. In fact, the history of subject matter eligibility predates the Constitution. In order to define the modern problem, a brief recitation of the history of the Patent Act, followed by a summary of relevant historical precedent, is necessary.

A. History of the Patent Act

Statutorily eligible subject matter has remained essentially unchanged since Congress exercised its explicitly granted constitutional power to protect inventions and encourage innovation by enacting the first Patent Act in 1790.[5] The seeds of the U.S. patent system were first planted by the founding fathers, who wrote into the Constitution a congressional grant of power "[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."[6]

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perform a new task. In 1952, a group of scientists at the Institute for Advanced Study completed MANIAC I, the first digital computer capable of operating upon stored programs, as opposed to hard-wired circuitry." (citing Michael C. Gemignomi, *Legal Protection for Computer Software: The View from '79*, 7 RUTGERS COMPUTER & TECH. L.J. 269, 270 (1980) and Stanislaw M. Ulam, *Computers*, 211 SCI. AM. 202 (1964))).

2 *See* Gottschalk v. Benson, 409 U.S. 63, 72 (1972) (discussing the issue of patenting computer programs as processes).

3 *See, e.g., In re* Bilski, 545 F.3d 943, 956 (Fed. Cir. 2008) (explaining the machine or transformation test).

4 *CLS Bank Int'l*, 484 F. App'x at 560.

5 Patent Act of 1790, ch. 7, 1 Stat. 109–12 (repealed 1793).

6 U.S. CONST. art. 1, § 8, cl. 8.

However, the framers did not intend their constitutional language to be interpreted boundlessly, for they sought to avoid the English monarchy's practice of monopolizing specific trades to the detriment of the common good:

> The clause is both a grant of power and a limitation. This qualified authority, unlike the power often exercised in the sixteenth and seventeenth centuries by the English Crown, is limited to the promotion of advances in the "useful arts." It was written against the backdrop of the practices—eventually curtailed by the Statute of Monopolies—of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public.[7]

The historical practices consisted of the following:

> In the 16th and 17th centuries, the English Crown granted monopolies over entire types of business to specific individuals, for example the grant by James I to Darcy in 1600 of the exclusive right to manufacture or sell playing cards or the exclusive right to the printing business held by the London guild of booksellers and printers. The purpose of such monopolies "was to enrich the King . . . as well as the grantee, at the expense of the community." With this background in mind, the framers consciously acted to bar Congress from granting letters patent in particular types of business.[8]

Congress passed the first Patent Act in 1790, including provisions limiting patentable subject matter to "any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used," and granting the inventor the "sole and exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention or discovery."[9]

Soon thereafter, in 1793, Congress amended the patent laws, changing the language to allow a patent for "any new and useful art, machine, manufacture or composition of matter."[10] This language, from 1793, is essentially the same as that used today.[11]

The next amendment in 1836 made no change to this statutory language.[12] The word "art" was changed to "process," defined as "process, art or method," in 1952.[13] By changing "art" to "process," Congress was merely preserving the original meaning of the Act by updating its vocabulary.[14] Likewise, the Supreme Court has made clear that the language amended in 1952 had no substantive effect on patent eligibility, stating that "[a]nalysis of the eligibility of a claim of patent protection for a 'process' did not change with the addition of that term to § 101."[15]

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7 Graham v. John Deere Co., 383 U.S. 1, 5 (1966).

8 *In re* Comiskey, 554 F.3d 967, 976 (Fed. Cir. 2009) (citations omitted).

9 Patent Act of 1790, ch. 7, § 1, 1 Stat. 109, 110 (repealed 1793).

10 Patent Act of 1793, ch. 11, § 1, 1 Stat. 318, 319 (repealed 1836).

11 *In re Comiskey*, 554 F.3d at 977.

12 *In re* Nuijten, 500 F.3d 1346, 1352 (Fed. Cir. 2007) (citing Patent Act of 1836, ch, 357, § 6, 5 Stat. 117, 119).

13 *Id.* (citing 35 U.S.C. § 100(b) (1952)).

14 *See id.* at 1354–55 (citing S. REP. NO. 82-1979, at 5 (1952)) (explaining that "art" in this context is "practically synonymous with process or method").

15 Diamond v. Diehr, 450 U.S. 175, 184 (1981).

B. Relevant Precedent

At the time of this article's writing, in order to determine the patent eligibility of a given subject matter, the Court first looks to § 101's guideline that any process, machine, manufacture, or composition of matter is patentable, and then considers the judicially imposed limitations precluding from protection abstract ideas, physical phenomena, or laws of nature.[16] To that end, the "machine or transformation" test is an important and useful clue, but not the sole test, of patent eligibility.[17] This modern snapshot is the result of some forty years of precedent,[18] starting with the Supreme Court's holding that a formula in the abstract is not patentable subject matter in *Gottschalk v. Benson*,[19] in the same way that a formula with insignificant post-solution activity was held to be ineligible in *Parker v. Flook*,[20] compared to an application of a formula which may well be deserving of patent protection, as stated in *Diamond v. Diehr*,[21] and finally that a fundamental concept, like that of financial hedging in *Bilski v. Kappos*,[22] is ineligible for essentially the same reason.

In 1972, the Supreme Court decided *Gottschalk v. Benson*, its first decision related to the subject matter eligibility of a computer-related invention.[23] In *Benson*, the patent at issue was directed "to the processing of data by program and more particularly to the programmed conversion of numerical information in general-purpose digital computers."[24] Specifically, the patent "claimed a method for con-

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16 35 U.S.C. § 101 (2006); *see also* 35 U.S.C. § 100(b) (2006) (defining the term "process" to mean "process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material"); *see generally* Bilski v. Kappos, 130 S. Ct. 3218 (2010).

17 *See Bilski*, 130 S. Ct. at 3221.

18 This paper also acknowledges three prior decisions that are regarded by some as the historic cases that illustrate how excluding abstract ideas limited claim scope before *Gottschalk v. Benson*. *See* Mark A. Lemley et. al., *Life After* Bilski, 63 STAN. L. REV. 1315, 1332 (2011). O'Reilly v. Morse, 56 U.S. 62 (1853) (invalidating Samuel Morse's telegraph patent because in addition to its valid claim on the telegraph machine itself, the patent attempted to claim all transmission of printed information by an electromagnetic signal by any means, which would foreclose future inventors who may discover modes of writing or printing at a distance by means of the electric or galvanic current); Dolbear v. Am. Bell Tel. Co. (The Telephone Cases), 126 U.S. 1 (1888) (allowing Alexander Graham Bell his patent to the transmission of voice over a closed circuit, using either a vibration or a resistance method, only one of which was ultimately reduced to practice, because he was able to describe "the exact electrical condition that must be created to accomplish his purpose," or in other words an application of the inventive principle, and did not claim all transmissions of voice by any means or machinery, like Morse had); Mackay Radio & Tel. Co. v. Radio Corp. of Am., 306 U.S. 86 (1939) (holding that a patent on the use of a well-known formula to calculate optimal wire lengths to receive radio signals was a patent-eligible application of the equation, and thus a practical application of an abstract idea was eligible for patent).

19 Gottschalk v. Benson, 409 U.S. 63, 71–72 (1972).

20 Parker v. Flook, 437 U.S. 584, 594–96 (1978).

21 Diamond v. Diehr, 450 U.S. 175, 191–93 (1981).

22 *Bilski*, 130 S. Ct. at 3218 (stating that the concept of hedging "is an unpatentable abstract idea, just like the algorithms at issue in *Benson* and *Flook*").

23 *Benson*, 409 U.S. at 63.

24 *Id.* at 64.

verting binary-coded decimal (BCD) numerals into pure binary numerals."[25] The claimed method operated by "programming a general-purpose digital computer to convert signals from binary-coded decimal form into pure binary form."[26] To function,

> [t]he method sought to be patented varies the ordinary arithmetic steps a human would use by changing the order of the steps, changing the symbolism for writing the multiplier used in some steps, and by taking subtotals after each successive operation. The mathematical procedures can be carried out in existing computers long in use, no new machinery being necessary.[27]

The Court defined a digital computer as "operat[ing] on data expressed in digits, solving a problem by doing arithmetic as a person would do it by head and hand."[28] Therefore, the claimed process merely encompassed programming a computer to perform calculations that, in the alternative, could "be performed without a computer."[29]

The Court based its holding on the rule that "[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work."[30] The Court held the claimed process to be unpatentable because

> [h]ere the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may (1) vary from the operation of a train to verification of drivers' licenses to researching the law books for precedents and (2) be performed through any existing machinery or future-devised machinery or without any apparatus.[31]

Therefore, the practical effect of patenting the formula for converting BCD numerals to pure binary numerals "would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself."[32] In so holding, the Court handily foreclosed the possibility that a patent should ever pre-empt so much; thus, the Court invalidated a computer-implemented formula in the abstract.

After the invalidation in *Benson* of patenting computer-implemented formulas in the abstract, the next landmark Supreme Court decision came six years later, in *Parker v. Flook*, where the patent claimed a formula in a specific application.[33] In *Flook*, the patent at issue claimed a method of updating the "alarm limits" of an automotive catalytic conversion process.[34] The claimed method consisted of three

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25 *Id.* at 64–65.
26 *Id.* at 65.
27 *Id.* at 67.
28 *Id.* at 65.
29 *Benson*, 409 U.S. at 67.
30 *Id.*
31 *Id.* at 68.
32 *Id.* at 72.
33 Parker v. Flook, 437 U.S. 584, 584 (1978).
34 *Id.* at 585 ("An 'alarm limit' is a number. During catalytic conversion processes, operating conditions such as temperature, pressure, and flow rates are constantly monitored. When any of these

steps: "an initial step which merely measures the present value of the process variable (*e.g.*, the temperature); an intermediate step which uses an algorithm to calculate an updated alarm-limit value; and a final step in which the actual alarm limit is adjusted to the updated value."[35]

At the time the patent at issue in *Flook* was applied for, the automotive catalytic converter had been public knowledge for some time.[36] So "[t]he only difference between the conventional methods of changing alarm limits and that described in respondent's application rests in the second step—the mathematical algorithm or formula."[37] It followed that the only novel nature of the patent was from the use of a mathematical formula by a computer to accelerate its solution and thus solve the post-solution objective of adjusting the alarm limit.[38]

The Court, recognizing that "the discovery of a novel and useful mathematical formula may not be patented,"[39] instead addressed "whether the identification of a limited category of useful, though conventional, post-solution applications of such a formula makes respondent's method eligible for patent protection."[40] The Court held that

> [t]he process itself, not merely the mathematical algorithm, must be new and useful. Indeed, the novelty of the mathematical algorithm is not a determining factor at all. Whether the algorithm was in fact known or unknown at the time of the claimed invention, as one of the "basic tools of scientific and technological work," it is treated as though it were a familiar part of the prior art.[41]

Furthermore,

> [t]he notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance. A competent draftsman could attach some form of post-solution activity to almost any mathematical formula; the Pythagorean theorem would not have been patentable, or partially patentable, because a patent application contained a final step indicating that the formula, when solved, could be usefully applied to existing surveying techniques.[42]

So, in its simplest terms, the Court held that "a claim for an improved method of calculation, even when tied to a specific end use, is unpatentable subject matter under § 101."[43]

'process variables' exceeds a predetermined 'alarm limit,' an alarm may signal the presence of an abnormal condition indicating either inefficiency or perhaps danger.").

35 *Id.* (footnote omitted).

36 *See* Catalytic Structure and Composition, U.S. Patent No. 2,742,437 (filed Sept. 29, 1952) (issued Apr. 17, 1956).

37 *Flook*, 437 U.S. at 585–86.

38 *Id.* at 586 ("Although the computations can be made by pencil and paper calculations, the abstract of disclosure makes it clear that the formula is primarily useful for computerized calculations producing automatic adjustments in alarm settings.").

39 *Id.* at 585.

40 *Id.*

41 *Id.* at 591–92.

42 *Id.* at 590 (footnote omitted).

43 *Flook*, 437 U.S. at 595 n.18.

The Court then focused on how a patent may apply a formula in a non-abstract way and therefore be considered patent-eligible subject matter in *Diamond v. Diehr*.[44] In *Diehr*, the patent application claimed "a process for curing synthetic rubber which include[d] in several of its steps the use of a mathematical formula and a programmed digital computer . . . ."[45] The claimed process "use[d] a mold for precisely shaping the uncured material under heat and pressure and then curing the synthetic rubber in the mold so that the product [would] retain its shape and be functionally operative after the molding is completed."[46]

According to the applicants, "[a]chieving the perfect cure depend[ed] upon several factors including the thickness of the article to be molded, the temperature of the molding process, and the amount of time that the article is allowed to remain in the press."[47] The rubber molding industry at the time had already acknowledged the possibility of using the Arrhenius equation[48] to calculate, as a function of temperature and geometry, the earliest possible time to open the press and remove the cured product.[49] However, the industry had not been able to obtain uniformly accurate cures because the temperature of the molding press could not be precisely measured, thus making it difficult to do the necessary computations to determine cure time.[50]

The inventive concept, according to the applicants, was the process of constantly measuring the actual temperatures inside the mold.[51] These temperature measurements were then automatically fed into a computer which repeatedly recalculated the cure time by use of the Arrhenius equation.[52] When the recalculated time equaled the actual time that had elapsed since the press was closed, the computer would signal a device to open the press.[53] According to the applicants, the continuous measuring of the temperature inside the mold cavity, the feeding of this

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44 Diamond v. Diehr, 450 U.S. 175 (1981).

45 *Id.* at 177.

46 *Id.* (footnote omitted).

47 *Id.*

48 *Id.* at 177 n.2 ("The equation is named after its discoverer Svante Arrhenius and has long been used to calculate the cure time in rubber-molding presses. The equation can be expressed as follows: ln v = CZ + x, wherein ln v is the natural logarithm of v, the total required cure time; C is the activation constant, a unique figure for each batch of each compound being molded, determined in accordance with rheometer measurements of each batch; Z is the temperature in the mold; and x is a constant dependent on the geometry of the particular mold in the press.").

49 *Id.* at 178.

50 *Diehr*, 450 U.S. at 178 ("Because the temperature *inside* the press has heretofore been viewed as an uncontrollable variable, the conventional industry practice has been to calculate the cure time as the shortest time in which all parts of the product will definitely be cured, assuming a reasonable amount of mold-opening time during loading and unloading. But the shortcoming of this practice is that operating with an uncontrollable variable inevitably led in some instances to overestimating the mold-opening time and overcuring the rubber, and in other instances to underestimating that time and undercuring the product.").

51 *Id.*

52 *Id.*

53 *Id.* at 179.

information to a digital computer which constantly recalculates the cure time, and the signaling by the computer to open the press, were all new in the art.[54]

The Court found that the applicants

> d[id] not seek to patent a mathematical formula. Instead, they s[ought] patent protection for a process of curing synthetic rubber. Their process admittedly employ[ed] a well-known mathematical equation, but they d[id] not seek to pre-empt the use of that equation. Rather, they s[ought] only to foreclose from others the use of that equation in conjunction with all of the other steps in their claimed process.[55]

Additionally, "a claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program, or digital computer."[56]

Because "a scientific truth, or the mathematical expression of it, is not a patentable invention, [but] a novel and useful structure created with the aid of knowledge of scientific truth may be,"[57] the Court held that "Arrhenius' equation is not patentable in isolation, but when a process for curing rubber is devised which incorporates in it a more efficient solution of the equation, that process is at the very least not barred at the threshold by § 101."[58] In so holding, the Court remarked that

> when a claim recites a mathematical formula (or scientific principle or phenomenon of nature), an inquiry must be made into whether the claim is seeking patent protection for that formula in the abstract. A mathematical formula as such is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment. Similarly, insignificant post-solution activity will not transform an unpatentable principle into a patentable process. To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection.[59]

The Supreme Court waited almost three decades after *Diehr* to issue another patent eligibility decision.[60] In the meantime, the CAFC had handed down two significant decisions regarding subject matter eligibility, first categorically allowing a certain type of patent called the business method patent in 1998,[61] and then rejecting

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54 *Id.*

55 *Id.* at 187.

56 *Diehr*, 450 U.S. at 187 ("Obviously, one does not need a 'computer' to cure natural or synthetic rubber, but if the computer use incorporated in the process patent significantly lessens the possibility of 'overcuring' or 'undercuring,' the process as a whole does not thereby become unpatentable subject matter.").

57 *Id.* at 188 (quoting Mackay Radio & Tel. Co. v. Radio of Am., 306 U.S. 86, 94 (1939)).

58 *Id.*

59 *Id.* at 191–92 (citations omitted).

60 That is, one regarding computer-related abstract subject matter. The Supreme Court opined on other patent eligibility questions in the meantime. *E.g.*, J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U.S. 124 (2001) (holding that newly developed plant breeds are patentable subject matter).

61 *See* State St. Bank & Trust Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368, 1373 (Fed. Cir. 1998), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008) (holding that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations

them, while reducing the Supreme Court's subject matter precedent to the Machine or Transformation (MoT) test as the sole test governing § 101 analyses, in 2008.[62]

In 2010, the Supreme Court issued its decision in *Bilski v. Kappos*,[63] affirming the practical exile of business method patents from the realm of eligible subject matter,[64] while overruling use of the MoT test as the sole test of patentable subject matter under § 101.[65] The patent at issue claimed "a procedure for instructing buyers and sellers how to protect against the risk of price fluctuations in a discrete section of the economy."[66] By way of representative Claim 1, it consisted of the following steps:

> (a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumers;
>
> (b) identifying market participants for said commodity having a counter-risk position to said consumers; and
>
> (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.[67]

Additionally, "[c]laim 4 put[ ] the concept articulated in claim 1 into a simple mathematical formula."[68] The remaining claims, the dependent claims, explained how

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into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result'—a final share price").

62 *See In re* Bilski, 545 F.3d 943, 956, 959–60 (Fed. Cir. 2008) (holding that "the machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101," and that "the 'useful, concrete and tangible result' inquiry is inadequate") (footnote omitted).

63 Bilski v. Kappos (*Bilski II*), 130 S. Ct. 3218 (2010).

64 The practical exile, but not the actual exile. *See id.* at 3229 ("[I]f the Court of Appeals were to succeed in defining a narrower category or class of patent applications that claim to instruct how business should be conducted, and then rule that the category is unpatentable because, for instance, it represents an attempt to patent abstract ideas, this conclusion might well be in accord with controlling precedent. But beyond this or some other limitation consistent with the statutory text, the Patent Act leaves open the possibility that there are at least some processes that can be fairly described as business methods that are within patentable subject matter under § 101. [But] even if a particular business method fits into the statutory definition of a 'process,' that does not mean that the application claiming that method should be granted.") (citations omitted).

65 *Id.* at 3226–27 (stating that "[t]he Court of Appeals incorrectly concluded that this Court has endorsed the machine-or-transformation test as the exclusive test," and holding that although "the machine-or-transformation test is a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101[, it] is not the sole test for deciding whether an invention is a patent-eligible 'process.'").

66 *Id.* at 3223 ("[The claimed invention] explains how buyers and sellers of commodities in the energy market can protect, or hedge, against the risk of price changes. . . . Claim 1 describes a series of steps instructing how to hedge risk.").

67 *Id.* at 3223–24 (citation omitted).

68 *Id.* at 3223.

the claimed process could be applied to the energy market.[69] Some of these claims also suggest familiar statistical approaches to determine the inputs to use in claim 4's equation.[70]

The Court looked to *Benson*, *Flook*, and *Diehr*, and concluded that the claims at issue in *Bilski II* were "not a patentable 'process.'"[71] "Rather than adopting categorical rules that might have wide-ranging and unforeseen impacts, the Court resolve[d] this case narrowly on the basis of . . . *Benson*, *Flook*, and *Diehr*, which show that petitioners' claims are not patentable processes because they are attempts to patent abstract ideas."[72] Claims 1 and 4 in petitioners' applications explain the basic concept of hedging, or protecting against risk.[73] In other words, the applicants sought "to patent both the concept of hedging risk and the application of that concept to energy markets."[74]

Allowing the patent on risk hedging "would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea."[75] Therefore, "[t]he concept of hedging, described in claim 1 and reduced to a mathematical formula in claim 4, is an unpatentable abstract idea, just like the algorithms at issue in *Benson* and *Flook*."[76]

III. The Special Problem of Uncertainty in Patent Litigation

Since *Bilski II*, one line of cases within the CAFC has focused on methods of doing business using a computer, as opposed to methods of doing business in a vacuum.[77] In attempting to adjudicate this new type of patent using the precedent handed down by *Benson*, *Flook*, *Diehr*, and *Bilski II*, the court has become muddled in the task of defining the boundaries of an abstract idea. This uncertainty has led, in the two years since *Bilski II*, to about as many of the eleven cases discussing patent eligibility based on computer-related abstract ideas to be found eligible as those found to be ineligible.[78] The CAFC's uncertainty is a result of the court's lack of a

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69 *See Bilski II*, 130 S. Ct. at 3224 ("[C]laim 2 claims '[t]he method of claim 1 wherein said commodity is energy and said market participants are transmission distributors.'") (citation omitted).

70 *Id.* ("[C]laim 7 advises using well-known random analysis techniques to determine how much a seller will gain 'from each transaction under each historical weather pattern.'") (citation omitted).

71 *Id.* at 3231.

72 *Id.* at 3225, 3229–30 ("The Court's precedents provide three specific exceptions to § 101's broad patent-eligibility principles: 'laws of nature, physical phenomena, and abstract ideas.'") (citation omitted).

73 *Id.* at 3231.

74 *Id.* at 3229.

75 *Bilski II*, 130 S. Ct. at 3231.

76 *Id.*

77 Like those upheld in State St. Bank & Trust Co. v. Signature Fin. Grp., Inc., 149 F.3d 1368, 1373 (Fed. Cir. 1998), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008), and invalidated in *Bilski II*.

78 Research Corp. Techs., Inc. v. Microsoft Corp., 627 F.3d 859 (Fed. Cir. 2010) (eligible); CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366 (Fed. Cir. 2011) (not eligible); Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323 (Fed. Cir. 2011), *vacated*, WildTangent, Inc. v. Ultramercial,

firm grasp on what an abstract idea really is and of what sort of an application of an abstract idea may be eligible for patent protection.

In deciding *Bilski II*, the Supreme Court gave the CAFC very specific ambiguous instructions regarding how to decide patent eligibility under § 101.[79] So, naturally, the court's first order of business immediately following *Bilski II* was to quantify the concept of an abstract idea so that it could apply it faithfully to the Supreme Court's binding precedent. The court, however, abstained from re-defining the term,[80] and instead ruled that despite the lack of a clear indication of what an abstract idea might be, counsel must convince the court "that this disqualifying characteristic should exhibit itself *so manifestly* as to override the broad statutory categories of eligible subject matter and the statutory context that directs primary attention on the patentability criteria of the rest of the Patent Act."[81] Intended to recognize "the clear congressional mandate that a very broad swath of inventions be eligible for patent protection," the "manifestly evident" standard was born. [82]

The "manifestly evident" standard's attempt to give effect to the Supreme Court's ban on abstract ideas proved unreliable, for after its announcement, the new standard was mostly ignored by the court.[83] When the court did apply the standard, it did so conclusively and without explanation.[84] Ultimately, in a decision it vacated soon after, the court went a step further to hold that

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LLC, 132 S. Ct. 2431 (2012) (eligible); Fuzzysharp Techs. Inc. v. 3DLabs Inc., 447 F. App'x 182, 183 (Fed. Cir. 2011) (unpublished) (eligible); Dealertrack, Inc. v. Huber, 674 F.3d 1315 (Fed. Cir. 2012) (not eligible); Fort Props., Inc. v. Am. Master Lease LLC, 671 F.3d 1317 (Fed. Cir. 2012) (not eligible); CLS Bank Int'l v. Alice Corp. Pty., 685 F.3d 1341 (Fed. Cir. 2012) (eligible), *vacated*, CLS Bank Int'l v. Alice Corp. Pty., 484 F. App'x 559 (Fed. Cir. 2012) (unpublished) (per curium); Bancorp Servs., LLC v. Sun Life Assurance Co., 687 F.3d 1266 (Fed. Cir. 2012) (not eligible); Highmark, Inc. v. Allcare Health Mgmt. Sys., Inc., 687 F.3d 1300 (Fed. Cir. 2012) (eligible); Whitserve, LLC v. Computer Packages, Inc., 694 F.3d 10 (Fed. Cir. 2012) (not eligible).

79 *See Bilski II*, 130 S. Ct. at 3231 (offering no specific definition of an abstract idea beyond examples of abstract ideas, like the concept of hedging at issue in the present case and the algorithms at issue in *Benson* and *Flook*).

80 The CAFC had defined the term in *In re* Alappat, 33 F.3d 1526, 1543 (Fed. Cir. 1994), *abrogated by In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008) (holding that abstract ideas constitute disembodied concepts or truths which are not "useful" from a practical standpoint standing alone, i.e., they are not "useful" until reduced to some practical application), but did not rely on this definition in its later decisions.

81 *Research Corp. Techs., Inc.*, 627 F.3d at 868.

82 *Dealertrack, Inc.*, 674 F.3d at 1333 (citations omitted).

83 After its announcement of the standard in *Research Corp. Techs., Inc.*, the court mentioned the new "manifestly evident" standard in only four of the next ten cases on the subject. It applied the standard in three, invalidating the patents at issue in *Dealertrack, Inc.*, 674 F.3d 1315, and *CLS Bank Int'l*, CLS Bank Int'l v. Alice Corp. Pty., 685 F.3d 1341 (Fed. Cir. 2012), *vacated*, CLS Bank Int'l v. Alice Corp. Pty., 484 F. App'x 559 (Fed. Cir. 2012) (unpublished) (per curium), and upholding the patent at issue in *Ultramercial LLC*, 657 F.3d 1323.

84 *See, e.g.*, *Dealertrack, Inc.*, 674 F.3d at 1333 (reciting the "manifestly evident" standard and stating simply that "[i]n this case, however, we are compelled to conclude that the claims are invalid as being directed to an abstract idea preemptive of a fundamental concept or idea that would foreclose innovation in this area").

> [u]nless the single most reasonable understanding is that a claim is directed to nothing more than a fundamental truth or disembodied concept, with no limitations in the claim attaching that idea to a specific application, it is inappropriate to hold that the claim is directed to a patent ineligible "abstract idea" under 35 U.S.C. § 101.[85]

But in vacating this decision and granting the rehearing en banc at issue in this paper, the court essentially acknowledged that it had tried to catch the Supreme Court's *Bilski II* § 101 throw, but instead had fumbled the ball.

In the process of fumbling the *Bilski II* § 101 standard, the court acknowledged that its true source of confusion was the difficulty of understanding the concept of an abstract idea.[86] In fact, the court was so befuddled in its third analysis under its new "manifestly evident" standard that after an extensive discussion of the abstract idea concept it ultimately skipped the § 101 analysis to hold that a patent should first be evaluated under §§ 102,[87] 103,[88] and 112[89] so that "it would be unnecessary to enter the murky morass that is § 101 jurisprudence."[90]

Throughout these cases, as the court determined if and when the application of an otherwise abstract idea resulted in patent eligibility, this uncertainty led to unpredictable results.[91] Of the ten relevant cases heard by the CAFC and decided under § 101, five claimed applications were correctly found invalid,[92] three claimed

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85 *CLS Bank Int'l*, 685 F.3d at 1352.

86 *See id.* at 1348–49 ("The abstractness of the 'abstract ideas' test to patent eligibility has become a serious problem, leading to great uncertainty and to the devaluing of inventions of practical utility and economic potential.").

87 35 U.S.C. § 102 (2006) (defining the standard of patentable novelty).

88 35 U.S.C. § 103 (2006) (defining the standard of patentable non-obviousness).

89 35 U.S.C. § 112 (2006) (defining the requirements of a patent's specification).

90 *See* MySpace, Inc. v. GraphOn Corp., 672 F.3d 1250, 1260 (Fed. Cir. 2012) ("[C]ourts could avoid the swamp of verbiage that is § 101 by exercising their inherent power to control the processes of litigation, and insist that litigants initially address patent invalidity issues in terms of the conditions of patentability defenses as the statute provides, specifically §§ 102, 103, and 112. If that were done in the typical patent case, litigation over the question of validity of the patent would be concluded under these provisions. . . .") (internal citation omitted). However, the Supreme Court treated a patent for "a machine system for automatic record-keeping of bank checks and deposits" in the same manner in 1976, *see* Dann v. Johnston, 425 U.S. 219, 220 (1976) ("Petitioner and respondent, as well as various Amici, have presented lengthy arguments addressed to the question of the general patentability of computer programs. We find no need to treat that question in this case, however, because we conclude that in any event respondent's system is unpatentable on grounds of obviousness.") (internal citation omitted). *Contra In re* Comiskey, 554 F.3d 967, 973 (Fed. Cir. 2009) ("Only if the requirements of § 101 are satisfied is the inventor 'allowed to pass through to' the other requirements for patentability, such as novelty under § 102 and, of pertinence to this case, non-obviousness under § 103.") (citation omitted).

91 *CLS Bank Int'l*, 685 F.3d at 1351 ("[A] claim that is drawn to a *specific way* of doing something with a computer is likely to be patent eligible whereas a claim to *nothing more than the idea* of doing that thing on a computer may not. But even with that appreciation, great uncertainty remains, and the core of that uncertainty is the meaning of the 'abstract ideas' exception.") (emphasis in original) (footnote omitted).

92 CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1367 (Fed. Cir. 2011) (regarding a "method and system for detecting fraud in a credit card transaction between [a] consumer and a merchant over the Internet"); Dealertrack, Inc. v. Huber, 674 F.3d 1315, 1316 (Fed. Cir. 2012) (re-

applications were incorrectly found to be valid,[93] and two claimed applications were correctly found to be valid,[94] and no claimed application was incorrectly found to be invalid.

In correctly finding certain computer-implemented claims to be invalid, the court noted that "[t]he mere implementation on a computer of an otherwise ineligible abstract idea will not render the asserted 'invention' patent eligible."[95] This concept dates back to the Supreme Court's *Flook* rule that "post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process[,] exalt[ing] form over substance."[96] As stated by the CAFC,

> [i]n order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly, i.e., through the utilization of a computer for performing calculations.[97]

The court correctly found at least one patent to satisfy this "significant part" inquiry and therefore be eligible subject matter. For example, in *Research Corp.*, the court held that the claimed method of digital image halftoning, despite incorporating mathematical formulas, did not claim the mathematical formula itself; rather, it claimed a process of halftoning in computer applications, and was therefore eligi-

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garding "a computer-aided method and system . . . for processing credit applications over electronic networks"); Fort Props., Inc. v. Am. Master Lease LLC, 671 F.3d 1317, 1318 (Fed. Cir. 2012) (regarding "an investment tool designed to enable property owners to buy and sell properties without incurring tax liability"); Bancorp Servs., LLC v. Sun Life Assurance Co., 687 F.3d 1266, 1270 (Fed. Cir. 2012) (regarding "a computerized means for tracking the book value and market value of [life insurance] policies and calculating the credits representing the amount the stable value protected writer must guarantee and pay should the policy be paid out prematurely"); Whitserve, LLC v. Computer Packages, Inc., 694 F.3d 10, 10 (Fed. Cir. 2012) (regarding "automated delivery of professional services and technology for backing up client data").

93 Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323, 1324 (Fed. Cir. 2011), *vacated*, WildTangent, Inc. v. Ultramercial, LLC, 132 S. Ct. 2431 (2012) (regarding "a method for distributing copyrighted products 'e.g., songs, movies, books,' over the Internet where the consumer receives a copyrighted product for free in exchange for viewing an advertisement, and the advertiser pays for the copyrighted content"); *CLS Bank Int'l*, 685 F.3d at 1341 (regarding "a computerized trading platform for exchanging obligations in which a trusted third party settles obligations between a first and second party so as to eliminate 'settlement risk'"); Highmark, Inc. v. Allcare Health Mgmt. Sys., Inc., 687 F.3d 1300, 1306 (Fed. Cir. 2012) (regarding a diagnostic system for determining whether a recommended treatment is appropriate and denying authorization until the treatment has been approved).

94 Research Corp. Techs., Inc. v. Microsoft Corp., 627 F.3d 859, 862–63 (Fed. Cir. 2010) (regarding a method of digital half-toning for digital printers); Fuzzysharp Techs. Inc. v. 3DLabs Inc., 447 F. App'x 182, 183 (Fed. Cir. 2011) (unpublished) (regarding an improved method of hidden surface detection).

95 *CLS Bank Int'l*, 685 F.3d at 1351.

96 Parker v. Flook, 437 U.S. 584, 590 (1978).

97 SiRF Tech., Inc. v. Int'l Trade Comm'n, 601 F.3d 1319, 1333 (Fed. Cir. 2010).

ble for patent.[98] In *Fuzzysharp*, the court vacated the lower court's finding of invalidity based on the patent's claimed method of hidden surface detection in a computer screen's display of a 3-D object. The court noted that on remand, claims may be found to be eligible applications of an abstract idea.[99]

However, misinterpretation of this precedent led the court to several curious validations of what should have been invalidly abstract. First, in *Ultramercial*, the court held that the claimed method of using advertising as a form of currency disclosed a practical application of the idea because restricting the concept to the Internet involved an extensive computer interface.[100] Likewise, in the vacated *CLS Bank International* opinion discussed above, the court held that the claimed method of exchanging obligations between parties using a computer covered the practical application of a business concept in a specific way because the computer was required to implement the steps of the patent.[101] These holdings exhibit a fundamental misunderstanding of the limitations that must be imposed on an abstract idea in order to instill patent eligibility. In finding a patent eligible because a computer is necessary for the practical application of the abstract idea, the court misinterpreted the guideposts set by *Benson*, *Flook*, *Diehr*, and *Bilski II*.

Perhaps in recognition of its misunderstanding, the court granted CLS Bank's petition to rehear *CLS Bank International* en banc, and vacated its written opinion.[102] The court presented the following questions for renewed and amicus briefing:

> a. What test should the court adopt to determine whether a computer-implemented invention is a patent ineligible "abstract idea"; and when, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea?
>
> b. In assessing patent eligibility under 35 U.S.C. § 101 of a computer-implemented invention, should it matter whether the invention is claimed as a method, system, or storage medium; and should such claims at times be considered equivalent for § 101 purposes?[103]

IV. The Mental Process or Inventive Concept Solution

The solution to the CAFC's confusion is a formal affirmation of the mental process exception as the fourth categorically unpatentable subject matter, or in other

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98 *Research Corp. Techs., Inc.*, 627 F.3d at 862–63, 869 ("Digital images often show shades of gray and even a spectrum of colors. Nonetheless, computer displays and printers can only use a limited number of primary colors to display these digital images. Halftoning bridges this gap by simulating a continuous tone image through the use of dots. Halftoning techniques allow computers to present many shades and color tones with a limited number of pixel colors.").

99 *See Fuzzysharp*, 447 F. App'x at 186.

100 Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323, 1328 (Fed. Cir. 2011), *vacated*, WildTangent, Inc. v. Ultramercial, LLC, 132 S. Ct. 2431 (2012).

101 CLS Bank Int'l v. Alice Corp. Pty., 685 F.3d 1341, 1355 (Fed. Cir. 2012), *vacated*, CLS Bank Int'l v. Alice Corp. Pty., 484 F. App'x 559 (Fed. Cir. 2012) (unpublished) (per curium).

102 CLS Bank Int'l v. Alice Corp. Pty., 484 F. App'x 559, 559 (Fed. Cir. 2012) (unpublished) (per curium).

103 *Id.* at 559–60.

words, an inventive concept requirement for subject matter eligibility. Merely replacing the human brain with a "computer" should not make an otherwise patent-ineligible mental process eligible for patent. This exception and its corollary requirement are consistent with historical subject matter eligibility precedent, have been recently utilized by both the CAFC and the Supreme Court, and reasonably fill the logical gap between patent-ineligible abstract ideas and their patent-eligible implementations including computer implementations that confounded the CAFC in its *CLS Bank International* decision.

A. Historical Precedent

First, the bar on mental process subject matter is not unfamiliar to the court. It was formally acknowledged by the Supreme Court in 1972 in *Gottschalk v. Benson*.[104] It is unclear exactly what significance the Court intended, due to its seemingly insignificant mention. Given the development and then abandonment of the "mental steps" doctrine by the Court of Customs and Patent Appeals (CCPA) leading up to *Benson*, it is clear that with its passing reference, the Court curtly affirmed the earlier precedent that had been since overruled by lower courts, establishing that a computer program performing an otherwise mental process was outside of the scope of § 101.[105]

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[104] Gottschalk v. Benson, 409 U.S. 63, 67 (1972) ("Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.").

[105] *See generally* Diamond v. Diehr, 450 U.S. 175, 195–96 (1981) (Stevens, J., dissenting) ("Prior to 1968, [the "mental steps" doctrine excluded processes involving mental operations from the realm of patent-eligible subject matter] . . . based on the familiar principle that a scientific concept or mere idea cannot be the subject of a valid patent. The doctrine was regularly invoked to deny patents to inventions consisting primarily of mathematical formulae or methods of computation. It was also applied against patent claims in which a mental operation or mathematical computation was the sole novel element or inventive contribution; it was clear that patentability could not be predicated upon a mental step."). Under the function of a machine doctrine, an inventor cannot have a patent for the function or abstract effect of a machine, but only for the machine which produces it, as first announced in *Corning v. Burden*, 56 U.S. 252, 268 (1853). In 1968, the Patent Office adopted guidelines by the President's Commission on the Patent System, based in part on the mental-steps doctrine. A computer program, whether claimed as an apparatus or a process, was unpatentable; however, a programmed computer could be a component of a patentable process if combined with unobvious elements to produce a physical result. However, in a series of decisions from 1968 to 1971, the CCPA repudiated the mental steps and function of a machine doctrine, reinterpreting § 101 as allowing computer programs within the categories to which Congress intended to extend patent protection. Additionally, the CCPA indicated that the mental-steps doctrine had been reduced to a prohibition on the granting of a patent that would confer a monopoly on all uses of a scientific principle or mathematic equation. Furthermore, the court announced that a computer programmed with a new and unobvious program was physically different from the same computer without that program; the programmed computer was a new machine or at least a new improvement over the unprogrammed computer. Now, a patent could be granted on a new computer program so long as the claims were drafted in apparatus form. In 1970, the CCPA emphasized its rejection of the mental steps doctrine and rejected the PTO's continued reliance on the "point of novelty" approach to claim analysis under which, if the novelty or advancement in the art claimed by the inventor resided solely in a step of the process embodying a mental operation or

Nine years later, in his dissent in *Diehr*, Justice Stevens explained that although the Court had "made no reference to the lower court's rejection of the mental-steps doctrine or to the new technological-arts standard" in *Benson*, "the Court clearly held that new mathematical procedures that can be conducted in old computers, like mental processes and abstract intellectual concepts, are not patentable processes within the meaning of § 101."[106]

The mental process exception mostly lay dormant for the next thirty years, until the CAFC re-kindled it in earnest in 2007 in order to properly consider the patent eligibility of business method patents.[107] In *In re Comiskey*, the court confirmed that under *Benson*, "'mental processes,' 'processes of human thinking,' and 'systems that depend for their operation on human intelligence alone' are not patent-eligible subject matter."[108] "Following the lead of the Supreme Court, this court and our predecessor court [the CCPA] have refused to find processes patentable when they merely claimed a mental process standing alone and untied to another category of statutory subject matter even when a practical application was claimed."[109] Therefore, "the application of human intelligence to the solution of practical problems is not in and of itself patentable."[110]

The next year, in 2008, in *In re Bilski*, the court decided the issue of whether the applicants were "seeking to claim a fundamental principle (such as an abstract idea) or a mental process."[111] Looking to *Diehr*, the court acknowledged that "while a claim drawn to a fundamental principle is unpatentable, 'an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection,'" because "the effect of allowing the claim would [not] allow the patentee to pre-empt substantially all uses of that fundamental principle."[112] Looking to *Benson*, the court noted that "[b]ecause the algorithm [at issue in *Benson*] had no uses other than those that would be covered by the claims (i.e., any conversion of BCD to pure binary on a digital computer), the claims pre-empted all uses of the algorithm and thus they were effectively drawn to the algorithm itself."[113]

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other unpatentable element, the claim was rejected under § 101 as being directed to nonstatutory subject matter. The court then announced that any sequence of operational steps was a patentable process under § 101 so long as it was within the "technological arts;" in 1971, this standard was refined in *In re Benson*, 441 F.2d 682 (C.C.P.A. 1971), *rev'd*, Gottschalk v. Benson, 409 U.S. 63 (1972), in which the court held that computers, regardless of the uses to which they are put, are within the technological arts for purposes of § 101.

106 *Diehr*, 450 U.S. at 201 (Stevens, J., dissenting) (citations omitted).

107 *See In re* Comiskey, 499 F.3d at 1365, 1379 (Fed. Cir. 2007), *vacated*, *In re* Comiskey, 554 F.3d 967 (Fed. Cir. 2009).

108 *In re* Bilski, 545 F.3d 943, 952 (Fed. Cir. 2008) (citing *In re Comiskey*, 499 F.3d at 1378–79).

109 *In re Comiskey*, 499 F.3d at 1378.

110 *Id.* at 1379.

111 *In re Bilski*, 545 F.3d at 952.

112 *Id.* at 953.

113 *Id.* at 954.

In subsequent decisions, the recitation of mental process was dropped from the specific exclusions from patent eligibility,[114] seemingly under the presumption that a mental process is merely a category of an abstract idea.[115]

B. Post-*Bilski II* Precedent

In *CyberSource Corp.*, its second post-*Bilski II* decision regarding § 101, the CAFC reaffirmed its acknowledgement of the mental process exception in *In re Bilski*, stating that "mental processes are not patent-eligible subject matter because the 'application of [only] human intelligence to the solution of practical problems is no more than a claim to a fundamental principle.'"[116] The court noted that the mental process exception is not limited to algorithms alone, and can encompass any non-arithmetic steps that "can be performed in the human mind, or by a human using a pen and paper."[117] Furthermore, "the incidental use of a computer to perform [a] mental process [ ] does not impose a sufficiently meaningful limit on the claim's scope," and "does not make the otherwise unpatentable method patent-eligible under § 101."[118]

The next year, in March 2012, the Supreme Court noted that the patent in *Flook* was held ineligible because in claiming a mathematical formula applied to an otherwise known process, "there was no 'inventive concept' in the claimed application of the formula."[119] In other words, the Court presented the inventive concept requirement to embody the *Flook* rule that post-solution activity that is purely conventional or obvious cannot transform an unpatentable principle into a patentable process. The Court invalidated the patent at issue, which claimed a process of directing a doctor to measure the level of a metabolite, use a law of nature to calculate toxicity limits, and adjust the drug dosage accordingly because "these instructions add nothing specific to the laws of nature other than what is well-understood, routine, conventional activity, previously engaged in by those in the field."[120] The Court's inventive concept requirement in the context of a law of nature is equally

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[114] *Bilski II*, 130 S. Ct. 3218, 3225 (2010) ("The Court's precedents provide three specific exceptions to § 101's broad patent-eligibility principles: 'laws of nature, physical phenomena, and abstract ideas.'") (citation omitted).

[115] *See In re Bilski*, 545 F.3d at 961. *See also Bilski II*, 130 S. Ct. 3218 (affirming *In re Bilski* under the heading of an abstract idea instead of a mental process). *Accord* CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1371 (Fed. Cir. 2011) ("[A]n unpatentable mental process [is] a subcategory of unpatentable abstract ideas.").

[116] *CyberSource Corp.*, 654 F.3d at 1371 (quoting *In re Bilski*, 545 F.3d at 965).

[117] *Id.* at 1372 ("Claim 3 does not limit its scope to any particular fraud detection algorithm, and no algorithms are disclosed in the '154 patent's specification. Rather, the broad scope of claim 3 extends to essentially any method of detecting credit card fraud based on information relating past transactions to a particular 'Internet address,' even methods that can be performed in the human mind.").

[118] *Id.* at 1375.

[119] Mayo Collaborative Servs. v. Prometheus Labs., Inc., 132 S. Ct. 1289, 1299 (2012).

[120] *Id.*

applicable to the present discussion because mathematical algorithms and laws of nature are conceptually interchangeable and are governed by the same principles.[121]

Four months later, the CAFC decided *Bancorp*, and noted that "a machine, system, medium, or the like may in some cases be equivalent to an abstract mental process for purposes of patent ineligibility."[122] Furthermore, "the form of the claims should not trump basic issues of patentability."[123] The court ruled that "[t]o salvage an otherwise patent-ineligible process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not," and "[t]he computer required by some of Bancorp's claims is employed only for its most basic function, the performance of repetitive calculations, and as such does not impose meaningful limits on the scope of those claims."[124]

Since *Bancorp*, although no other CAFC majority decision has mentioned either the mental process exception or inventive concept requirement, Judge Mayer has twice dissented based on these concepts,[125] and CLS Bank relied on the inventive concept requirement in its brief to the en banc court.[126]

C. A Mental Process is the Application of an Abstract Idea and Imposes an Inventive Concept Requirement

A mental process is the application of an abstract idea, and its implementation must be inventive in order to confer patent eligibility under § 101. The CAFC has acknowledged this relationship between an abstract idea and a mental process.[127] In order for the implementation of a mental process to be patentable, it cannot foreclose an entire method that may be performed within the human mind.

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[121] *See In re* Bilski, 545 F.3d 943, 953 n.6 (Fed. Cir. 2008) ("Mathematical algorithms have, in other cases, been identified instead as abstract ideas rather than laws of nature. Whether either or both views are correct is immaterial since both laws of nature and abstract ideas are unpatentable under § 101.") (citation omitted).

[122] Bancorp Servs., LLC v. Sun Life Assurance Co., 687 F.3d 1266, 1277 (Fed. Cir. 2012).

[123] *Id.*

[124] *Id.* at 1278.

[125] Highmark, Inc. v. Allcare Health Mgmt. Sys., Inc., 687 F.3d 1300, 1324 (Fed. Cir. 2012) (Mayer, J., dissenting); Whitserve, LLC v. Computer Packages, Inc., 694 F.3d 10, 41 (Fed. Cir. 2012) (Mayer, J., dissenting).

[126] *See* Principal en Banc Brief for CLS Bank International and CLS Services Ltd, CLS Bank Int'l v. Alice Corp. Pty., 717 F.3d 1269 (Fed. Cir. 2013) (No. 2011-1301), 2012 WL 6044411, at *11 (arguing that a patent-eligible method must be implemented through an inventive concept, and that patent eligibility turns on the substance of the claimed invention, not the form in which the claims are drafted).

[127] CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1373 (Fed. Cir. 2011) ("[A] method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101. Methods which can be performed entirely in the human mind are unpatentable not because there is anything wrong with claiming mental method steps as part of a process containing non-mental steps, but rather because computational methods which can be performed *entirely* in the human mind are the types of methods that embody the 'basic tools of scientific and technological work' that are free to all men and reserved exclusively to none.") (footnote omitted).

Furthermore, restricting the implementation to a computer is not an effective restriction at all, because such devices are essential to the modern and developing digital society and industry, and results in equally broad foreclosure as claiming the essential process itself. The Supreme Court noted that when "[t]he end use may . . . be performed through any existing machinery or future-devised machinery or without any apparatus," the claim is ineligible.[128] In the modern, digital age, imposing a computer-implemented limitation sequesters the right to perform the claimed method through future-devised machinery, and therefore falls far short of imposing a meaningful limitation. In other words, the practical effect of patenting the mental process, even if restricted to implementation by a computer, "would wholly preempt the mathematical formula and in practical effect would be a patent on the algorithm itself."[129] The CAFC summarized the ineffectiveness of restricting implementation of a mental process to a computer in *Bancorp*.[130]

In order to "salvage an otherwise patent-ineligible process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not."[131] In *Bancorp*, the required computer was employed only for its most basic function, the performance of repetitive calculations, and as such did not impose meaningful limits on the scope of those claims.[132] The inventive concept requirement may be satisfied "where, as a practical matter, the use of a computer is required to perform the claimed method."[133]

For example, in *SiRF Technology, Inc.*, the court found that claims to a "method for calculating an absolute position of a GPS receiver and an absolute time of reception of satellite signals" recited patent-eligible subject matter.[134] The court noted that it was "not dealing with . . . a method that [could] be performed without a machine" and that there was "no evidence . . . that the calculations here [could] be performed entirely in the human mind."[135] To the contrary, the court found it was

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[128] Gottschalk v. Benson, 409 U.S. 63, 68 (1972).

[129] *Id.* at 72.

[130] Bancorp Servs., LLC v. Sun Life Assurance Co., 687 F.3d 1266, 1277–78 (Fed. Cir. 2012) ("At its most basic, a 'computer' is 'an automatic electronic device for performing mathematical or logical operations.' As the Supreme Court has explained, '[a] digital computer . . . operates on data expressed in digits, solving a problem by doing arithmetic as a person would do it by head and hand.' Indeed, prior to the information age, a 'computer' was not a machine at all; rather, it was a job title: 'a person employed to make calculations.' Those meanings conveniently illustrate the interchangeability of certain mental processes and basic digital computation, and help explain why the use of a computer in an otherwise patent-ineligible process for no more than its most basic function—making calculations or computations—fails to circumvent the prohibition against patenting abstract ideas and mental processes. As we have explained, '[s]imply adding a "computer aided" limitation to a claim covering an abstract concept, without more, is insufficient to render the claim patent eligible.'") (citations omitted).

[131] *Id.* at 1278.

[132] *Id.*

[133] CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1376 (Fed. Cir. 2011).

[134] SiRF Tech., Inc. v. Int'l Trade Comm'n, 601 F.3d 1319, 1331 (Fed. Cir. 2010).

[135] *Id.* at 1333.

"clear that the methods at issue could not be performed without the use of a GPS receiver."[136]

Similarly, in *Research Corp. Techs., Inc.*, the court upheld the patentability of a claimed method "for rendering a halftone image of a digital image by comparing, pixel by pixel, the digital image against a blue noise mask."[137] Because the method required the manipulation of computer data structures (e.g., the pixels of a digital image and a two-dimensional array known as a mask) and the output of a modified computer data structure (a halftoned digital image), the method could not, as a practical matter, be performed entirely in a human's mind.[138]

Therefore, claims withstand the judicially created exclusions from § 101 and are eligible for patent protection when they exhibit an inventive concept, and do not merely accelerate an otherwise mental process.

V. The Solution Applied to *CLS Bank International* En Banc Rehearing

Within these guidelines, the mental process exclusion and inventive concept requirement handily solve the problems encountered by the court in *CLS Bank International* and answer the questions presented in preparation for its rehearing en banc.[139]

A. What test should the court adopt to determine whether a computer-implemented invention is a patent-ineligible abstract idea?

As stated, the court should formally adopt the mental process exclusion to determine whether a computer-implemented invention is ineligible subject matter under § 101. However, the court should avoid adopting a mechanized version of these concepts, as it did with its MoT test. As the Supreme Court has suggested, and the CAFC has acknowledged, formulating a test to be applied mechanically "risk[s] obscuring the larger object of securing patents for valuable inventions without transgressing the public domain."[140]

Therefore, under the correct legal theory, the court should approach patent eligibility of a computer-implemented claim by first questioning whether or not, if the computer were removed, a human could perform all of the steps of the claim. As stated succinctly by the lower court's decision in *CLS Bank International*, "[i]f someone had thought of this invention 100 years ago, they might have implemented it in a non-electronic manner using various pre-computing tools such as an abacus

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[136] *Id.* at 1332.

[137] Research Corp. Techs., Inc. v. Microsoft Corp., 627 F.3d 859, 868 (Fed. Cir. 2010).

[138] *Id.*

[139] *See* CLS Bank Int'l v. Alice Corp. Pty., 685 F.3d 1341, 1343 (Fed. Cir. 2012), *vacated*, CLS Bank Int'l v. Alice Corp. Pty., 484 F. App'x 559 (Fed. Cir. 2012) (unpublished) (per curium) (questioning the patent eligibility of an invention implemented by computers).

[140] Ultramercial, LLC v. Hulu, LLC, 657 F.3d 1323, 1327 (Fed. Cir. 2011), *vacated*, WildTangent, Inc. v. Ultramercial, LLC, 132 S. Ct. 2431 (2012).

or handwritten ledgers."[141] In such a case, the patent merely claims a mental process without an inventive concept, and fails to claim eligible subject matter.

B. When, if ever, does the presence of a computer in a claim lend patent eligibility to an otherwise patent-ineligible idea?

The presence of a computer in a claim should only lend patent eligibility to an otherwise patent-ineligible idea where, as a practical matter, the use of a computer is required to perform the claimed method,[142] like in *SiRF Technology, Inc.* and *Research Corp.*[143]

However, this question should not be read to beg an answer that "misses the point," as the CAFC did in *CLS Bank International* and as Bancorp did in *Bancorp*.

In *CLS Bank International*, the court found that "[t]he asserted claims appear to cover the practical application of a business concept in a specific way, which requires computer implemented steps of exchanging obligations,"[144] stated differently, that solely because the claims required computer implementation of the mental process, the computer was required to perform the claimed method.

The court in *Bancorp* implicitly acknowledged *CLS Bank International*'s non sequitor, noting that

> Bancorp seeks to analogize its case to *SiRF*, contending that a computer 'plays a significant part' in its claims because they require 'precise and repetitive calculation.' That misses the point. It is the management of the life insurance policy that is 'integral to each of [Bancorp's] claims at issue,' not the computer machinery that may be used to accomplish it.[145]

Furthermore, "[u]sing a computer to accelerate an ineligible mental process does not make that process patent-eligible."[146]

That is, just because the claim requires a computer to implement the process, or just because the mental process is so complex that a data processing machine is necessary to perform the calculation quickly or efficiently, the computer's presence within the claim does not mean that the computer is "required to perform the claimed method" for the purposes of patent eligibility.

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[141] CLS Bank Int'l v. Alice Corp. Pty., 768 F. Supp. 2d 221, 242 (D.D.C. 2011), *rev'd*, 685 F.3d 1341 (Fed. Cir. 2012), *vacated*, CLS Bank Int'l v. Alice Corp. Pty., 484 F. App'x 559 (Fed. Cir. 2012) (unpublished) (per curium).

[142] CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1376 (Fed. Cir. 2011).

[143] *See supra* Part III. C (arguing that patent eligibility should be limited to the claims where the process cannot be performed without the use of a computer).

[144] *CLS Bank Int'l*, 685 F.3d at 1355.

[145] Bancorp Servs., LLC v. Sun Life Assurance Co., 687 F.3d 1266, 1279 (Fed. Cir. 2012).

[146] *Id.*

C. In assessing patent eligibility under 35 U.S.C. § 101 of a computer-implemented invention, should it matter whether the invention is claimed as a method, system, or storage medium?; Should such claims at times be considered equivalent for § 101 purposes?

For the purpose of § 101 eligibility, it should not matter how the invention is claimed, and all methods of claiming the same invention should be considered equivalents. Indeed, the concept that patentable subject matter under § 101 is not "like a nose of wax which may be turned and twisted in any direction" is over a century old.[147]

It has long been settled that regardless of what statutory category ("process, machine, manufacture, or composition of matter"[148]) a claim's language is crafted to literally invoke, the court looks to the underlying invention for patent-eligibility purposes.[149] The President's Commission on the Patent System so acknowledged in 1966, suggesting to the PTO that "[i]ndirect attempts to obtain patents and avoid the rejection, by drafting claims as a process, or a machine or components thereof programmed in a given manner, rather than as a program itself, have confused the issue further and should not be permitted."[150]

For example, in *CyberSource*, the CAFC addressed the issue of a "Beauregard claim," a claim to a computer readable medium (e.g., a disk, hard drive, or other data storage device) containing program instructions for a computer to perform a particular process.[151] CyberSource argued that its Beauregard claim was patent-eligible per se because it recites a "manufacture," rather than a "process," under the statutory language of § 101.[152] The Beauregard claim at issue recited nothing more than a computer-readable medium containing program instructions for executing the method claim at issue.[153] The court found the method claim to be unpatentable because it is drawn to a mental process, that is, because "one could mentally perform the fraud detection method that underlies" both claims, the claims attempted to capture unpatentable mental processes and were invalid under § 101.[154]

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147 Parker v. Flook, 437 U.S. 584, 590 (1978) (citing White v. Dunbar, 119 U.S. 47, 51 (1886)).
148 35 U.S.C. § 101 (2006).
149 *See* CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1374 (Fed. Cir. 2011).
150 Gottschalk v. Benson, 409 U.S. 63, 72 (1972).
151 *CyberSource*, 654 F.3d at 1373.
152 *Id.* at 1374.
153 *Id.*
154 *Id.* at 1376–77.

As the CAFC stated in *Bancorp*, a machine, system, medium, or the like may in some cases be equivalent to an abstract mental process for purposes of patent ineligibility.[155] The form of the claims should not trump basic issues of patentability.[156] The guiding principle, therefore, is that regardless of the form of the claim, purely mental processes are unpatentable, even when performed by a computer.[157]

VI. Conclusion

A study of the relevant Supreme Court, CAFC, and CCPA case law reveals that current precedent dictates the exclusion of mental processes from patent eligibility, and demands an inventive concept in the implementation of a mental process to a tangible real world problem.

Claims that are implemented using some sort of electronic processing device should be eligible for patent protection only if the patent is essentially on the electronic device itself, as opposed to essentially on the process itself, using the processing device incidentally to perform calculations or comparisons or any activity that could otherwise be contemplated without the presence of the device. To illustrate, many patents have properly issued on devices commonly known as calculators,[158] but a patent claiming a method of using a calculator to perform arithmetic is not qualifying subject matter under § 101.

Acknowledgement of the mental process exclusion from patentable subject matter would enable the CAFC to adjudicate the questions it presented for briefing after granting its en banc rehearing in *CLS Bank International* without introducing another reductionist, mechanical test, of the kind that the Supreme Court has specifically cautioned against. Indeed, the Supreme Court has essentially asked the CAFC to acknowledge as much, inviting the CAFC "to defin[e] a narrower category or class of patent applications . . . and then rule that the category is unpatentable because, for instance, it represents an attempt to patent abstract ideas," because "this conclusion might well be in accord with controlling precedent."[159]

Regarding computer-implemented claims under the mental process exception and its corollary, the inventive concept requirement, the Federal Circuit's rehearing of *CLS Bank International* is its chance to do just that.

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[155] Bancorp Servs., LLC v. Sun Life Assurance Co., 687 F.3d 1266, 1277 (Fed. Cir. 2012).

[156] *Id.*

[157] *See* CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1375 (Fed. Cir. 2011) (explaining a method of programming a general-purpose computer to convert BCD numerals to pure binary numerals which was unpatentable because the conversion "can be done mentally").

[158] *See, e.g.*, U.S. Patent No. 2,668,661 (filed Nov. 23, 1944); U.S. Patent No. 4,001,566 (filed Oct. 29, 1973); U.S. Patent No. 5,623,433 (filed Mar. 11, 1993).

[159] *Bilski II*, 130 S. Ct. at 3229.

Aesthetic Functionality: Trademark Law's Red Herring Doctrine

Noa Tal*

I. Introduction

In a modern world replete with knock-offs and imitations of all varieties, it is no surprise that some courts have called into question the value of strong trademark protection. While trademark law often provides protection against the unauthorized imitation of marks, some courts have significantly curtailed its reach through a doctrine called "aesthetic functionality." A facially appealing doctrine, it basically says that, to the extent that certain trademarks serve any function apart from pure source differentiation, they should not be considered protectable as intellectual property.

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Many trademarks today have acquired popular value in excess of their intrinsic ability to simply denote the origin of a product. Consider a Gucci purse. The trademark "Gucci" does not simply serve to identify the source of the purse, but also to increase the value of the purse; a Gucci purse can be sold for more than the cost of its components, labor, and overhead, or the practical utility derived from the product itself. The brand or mark "Gucci" does serve the purpose of identifying the purse's maker, but its value is much greater than that because consumers associate the mark with quality, exclusivity, and wealth. "Gucci" is a prime example of a mark whose value far exceeds its capacity for source differentiation and is therefore a perfect candidate for legal imitation under the doctrine of aesthetic functionality.

Proponents of aesthetic functionality seek to separate the "merely aesthetic" qualities of a trademark from its "useful" source-identification quality. They assume that such a separation is possible and, indeed, in the best interest of the consumer; the idea being that, so long as the consumer is able to correctly identify source, he or she should benefit from increased competition from imitation products in the marketplace. This assumption is myopic and ignores the problems that trying to effect such a separation of aesthetic purpose and useful purpose can produce, including creating perverse incentives for consumers and companies. More importantly, the assumption overlooks the fact that, far from being an economically viable doctrine, aesthetic functionality's widespread application cannot logically result in economic or social gain.

This article discusses the economic inefficiencies of aesthetic functionality and the harm that it could have on our ability to encourage socially responsible behavior in individuals and companies. It begins by defining aesthetic functionality and describing the doctrine's genesis and evolution within trademark law. It then goes on to argue that aesthetic functionality has the potential to undermine the basic goals of trademark law, such as confusion prevention, and does not make economic or social sense for six essential reasons that will be discussed at length:

1) Aesthetic functionality requires judges to make a determination on the effects of aesthetic features on competition, which is too subjective an analysis, especially when there is no real market failure;

2) Aesthetic functionality has been interpreted in an overly broad fashion and could significantly weaken general trademark protection;

3) Aesthetic functionality must result in an identification race to the bottom, producing an inefficient use of resources;

4) Aesthetic functionality creates a disincentive for companies to develop, maintain, and police the use of trademarks, which increases confusion, thus hurting consumers and creating a disincentive for companies to invest in their reputations, which leads in turn to decreased quality of products;

5) Aesthetic functionality creates none of the competition-enhancing benefits of traditional functionality law and cannot therefore be justified on the same grounds; and

6) Aesthetic functionality increases the problem of third-party confusion, which negatively impacts our ability to encourage consumers and businesses to be socially responsible.

The goal of this article is to dig past our initial tendency to take a superficial stand on trademark imitation, considering the fact that trademarks are themselves widely considered to be superficial indications of source and status. The cases in which aesthetic functionality is potentially applicable are cases in which there is a market for imitating trademarks. These cases tend to involve luxury goods such as jewelry, accessories, or cars. This article does not seek to champion the cause of the makers or consumers of luxury items or to generate sympathy for their potential loss of profits. It looks beyond the inclination to cast imitation aside as a bourgeois person's problem and discusses the economic and social consequences of eroding trademark protection. The arguments presented focus on logical problems with the doctrine of aesthetic functionality and reveal potential economic and social consequences of trademark erosion that could reach people and places all around the world; that is to say, far beyond the Champs-Élysées.

II. Definition of Aesthetic Functionality

Aesthetic functionality is a doctrine that allows competitors to copy a rival company's trademark if the mark satisfies a "demand for the aesthetic as well as for the utilitarian."[1] Analyzing this definition within the context of general trademark law helps to illustrate its meaning and the consequences that wide-spread application of the doctrine could have. For this purpose, this article turns first to reviewing the basic rationales that underlie trademark law and the concept of "functionality" in general (of which aesthetic functionality is a sub-part). It then explains the difference between aesthetic functionality and the general "functionality bar." In the following sections, this article proceeds to argue that aesthetic functionality is not a viable doctrine for the six reasons stated in the introduction.

A. The Underpinnings of Trademark Law

Trademark law is the vehicle through which people obtain the exclusive right to use an identifying mark.[2] It is one of the most important forms of consumer protection in today's modern world.[3] The United States Code defines a "trademark" as follows:

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1 Pagliero v. Wallace China Co., 198 F.2d 339, 344 (9th Cir. 1952).

2 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 2:14 (4th ed. 1996).

3 *Id.* § 2:33.

> The term "trademark" includes any word, name, symbol, or device, or any combination thereof (1) used by a person, or (2) which a person has a bona fide intention to use in commerce and applies to register on the principal register established by this chapter, to identify and distinguish his or her goods, including a unique product, from those manufactured or sold by others and to indicate the source of goods, even if that source is unknown.[4]

Like other forms of intellectual property protection (and private property protection in general), protection of trademarks is costly to society because of various transaction costs that deplete or divert resources away from other uses.[5] These costs can arise in the form of businesses and individuals spending time and money to register marks, to police the infringement of marks, and to litigate any infringement that does occur to protect the value of marks and avoid their becoming "generic" under trademark law, and thus losing legal protection.[6] The trademark protection system also requires substantial overhead expenditure by society: it needs scholars and legislators to develop laws, a federal agency to promulgate and enforce them, and the court system to step in when enforcement fails.

In order to justify the costs of operating such a system, one has to look at the rationale behind trademark protection and the benefits it was designed to provide. The purpose of trademark law can be summarized as follows: "trademark law is designed to prevent sellers from confusing or deceiving consumers about the origin or make of a product, which confusion ordinarily does not exist when a genuine article bearing a true mark is sold."[7] The consumer protection rationale underlying trademark law is to be distinguished from the rationale underlying other forms of intellectual property, such as patent or copyright, which is to encourage innovation.[8] Trademark law is the only form of intellectual property today that is focused on protecting consumers rather than producers and is therefore an important tool in reducing harmful corporate practices.

Trademark protection is not the law's only tool for protecting consumers. Many federal agencies issue regulations aimed at consumer protection and causing harm to consumers is punishable under various civil and criminal laws.[9] But even with relatively strong consumer protection laws, trademark law is necessary to pro-

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4 15 U.S.C. § 1127 (2006).

5 William M. Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30 J.L. & Econ. 265, 273–80 (1987) (discussing the costs of legally enforceable trademarks).

6 *Id.*

7 NEC Elecs. v. CAL Circuit Abco, 810 F.2d 1506, 1509 (9th Cir. 1987) (citing Prestonettes, Inc. v. Coty, 264 U.S. 359, 368–69 (1924) and Monte Carlo Shirt, Inc. v. Daewoo Int'l (Am.) Corp., 707 F.2d 1054, 1058 (9th Cir. 1983)).

8 *See, e.g.*, TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23, 34 (2001) (stating that the purpose of patent law is to reward manufacturers for their innovation in creating a particular device).

9 For example, the Food and Drug Administration regulates practices in producing, labeling, and selling comestible items and has made it illegal to label a food as "calorie free," "no calories," or "zero calories" unless the food in question contains less than five calories per serving, 21 C.F.R. §101.60 (2013).

tect consumers in a modern economy comprised of increasingly diversified, mammoth corporations.

In our increasingly global economy, though large fines, product confiscation, and injunctions remain a deterrent to making products that harm consumers, such sanctions are less likely to dissuade large corporations from employing harmful practices because their bottom lines depend on several product lines in various countries. No one agency can police compliance with any law or regulation all around the world. The sheer size of some of today's multinational corporations makes it difficult for any one sanction to succeed as a deterrent.

In contrast to traditional enforcement measures, a decrease in the consumption of a company's products can cripple it economically, almost instantaneously, without the hassle or delay of legal action. The power of media and efficient technological communication now allows for the mere allegation that a company's product or practice is harmful to dampen consumer confidence in a brand all over the world, which can significantly undermine the worth of even a large corporation.

Strong trademark protection, which provides consumers with the tools to differentiate between brands, allows consumers to directly punish companies for harmful actions through avoidance of offending brands. It gives consumers the power to police corporate behavior by voting with their wallets, without having to rely on the government and the judicial process.

In addition to consumer protection, which is the more frequently cited purpose of trademark law, trademarks also promote economic efficiency.[10] They do this in two ways: (1) by allowing consumers to cut their costs of researching quality products (which can be merged into the consumer protection rationale, although this point emphasizes efficiency rather than safety) and (2) by encouraging the innovation of superior products.[11]

As to the first point regarding cost cutting, when consumers know that they can rely on a trademark as a valid indication of source, they use trademarks as a shortcut to quality assurance, even when buying a product they have never used.[12] This is efficient for the consumer because it saves time. It is also efficient for companies because it reduces the need to expend resources to re-prove the quality of products to consumers with each new release, and these savings can be transferred to consumers.[13]

The second point regarding superior product innovation merits a longer explanation. Encouraging innovation of superior products (by recognizing companies' proprietary interest in their marks so they will invest in quality) is traditionally seen

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[10] MCCARTHY, *supra* note 2, § 2:14.

[11] *Id.* § 2:3 (citing William M. Landes & Richard A. Posner, *The Economics of Trademark Law*, 78 TRADEMARK REP. 267 (1988)).

[12] *Id.* § 2:14.

[13] *Id.*

as an ancillary benefit of trademark protection, for which the primary purpose is traditionally said to be, as just explained, consumer protection.[14]

The theory that a company has a right to protect its trademark because it has invested in it has been discredited by various scholars and courts.[15] Landes and Posner summarize this view as follows: "the plaintiff in trademark litigation [the trademark owner] could be characterized as a 'vicarious avenger' of consumer interests," as opposed to a direct plaintiff vindicating its own interests.[16] However, it has also been widely argued that trademark protection should and does encourage the innovation of superior products by incentivizing companies to enhance the value of their marks by recognizing their direct proprietary interests therein.[17]

As this article will discuss in more detail below, some legal historians assert that the original purpose of trademark law was actually to protect the proprietary interests of firms on an unfair competition rationale, rather than to protect consumer interests.[18] It is therefore not a departure from trademark law's original purpose to recognize a firm's proprietary interest in a mark as distinct from the consumer's right not to be deceived. It is actually a return to trademark law's origins. Though traditional scholarship on trademark law considers consumer protection the primary (almost to the point of being the unique) goal of trademark law, there is a strong argument for recognizing businesses' direct proprietary rights to marks as an incentive to invest in quality as an equally important and fundamental aspect of trademark law as the consumer protection rationale.[19]

B. Trade Dress

The definition of trademark[20] is broad enough to encompass a myriad different ways by which companies might identify the source of their products.[21] The most readily identifiable and intuitive type of trademark is a name, such as "Coca-Cola." However, companies can also use original product packaging or the design of a product itself to indicate source and receive trademark protection therefor. This type of product identification is called "trade dress."[22] Trade dress "constitutes a 'symbol' or 'device'" under the definition of trademark.[23] The Supreme Court ex-

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14 *Id.* § 2:33.

15 *See, e.g., id.* (explaining that trademark owners suing for infringement results in protecting consumers).

16 MCCARTHY, *supra* note 2, § 2:33.

17 *Id.* § 2:3.

18 *See infra* Part III.D.

19 *See infra* Part III.D.

20 15 U.S.C. § 1127 (2006).

21 Wal-Mart Stores v. Samara Bros., 529 U.S. 205, 209 (2000).

22 *Id.* For example, in *Two Pesos, Inc. v. Taco Cabana, Inc.*, 505 U.S. 763, 765, 776 (2000), the Supreme Court held that the trade dress of a restaurant, consisting of interior decorations including "a festive and vivid color scheme using top border paint and neon stripes . . . [b]right awnings and umbrellas . . . ." is protectable under trademark law because the decoration is "inherently distinctive," meaning that it is immediately indicative of source in the consumer's mind.

23 *Wal-Mart Stores*, 529 U.S. at 209.

plains that trade dress is afforded broad protection under trademark law because "human beings might use a 'symbol' or 'device' [or] almost anything at all that is capable of carrying meaning [to identify a product] . . . [the language of the statute, 15 U.S.C. § 1127], read literally, is not restrictive [to names]."[24]

As a general rule, trade dress such as a candy wrapper, a red dripping wax seal on a bottle of bourbon, or even a restaurant decoration scheme can be inherently distinctive and receive automatic trademark protection.[25] For trade dress to be inherently distinctive, the packaging for which trademark protection is sought must be so obviously indicative of a source that the trademark owner need not present concrete proof that consumers automatically associate it with the source because such a showing is unnecessary.[26]

By contrast, certain types of trade dress, such as product design, require a showing of "secondary meaning" to be protectable because it is assumed that they are not inherently distinctive.[27]

> Secondary meaning is used generally to indicate that a mark or dress 'has come through use to be uniquely associated with a specific source.' 'To establish secondary meaning, a manufacturer must show that, in the minds of the public, the primary significance of a product feature or term is to identify the source of the product rather than the product itself.'[28]

A couple examples of historically protectable product designs that have acquired secondary meaning include the shape of a car[29] and the distinctive shape of furniture.[30]

Product designs require secondary meaning to acquire trademark protection because some designs serve to distinguish a product's source in a consumer's mind and some do not. For example, a consumer is not likely to associate a round table with a particular furniture designer by virtue of the table's round shape. But a car aficionado will immediately recognize a Ferrari by its shape, without needing to see the "Ferrari" logo on the back of the car. Where the designer of a product builds up

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[24] Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 162 (1995).

[25] Storck USA, L.P. v. Farley Candy Co., Inc., 797 F. Supp. 1399, 1406 (N.D. Ill. 1992); Maker's Mark Distillery, Inc. v. Diageo N. Am., Inc., 679 F.3d 410, 420 (6th Cir. 2012); *Two Pesos*, 505 U.S. at 765. Other interesting trade dress items which have been held to be protectable because they can act as immediate indications of source to the consumer include bedroom furniture, Ashley Furniture Indus., Inc. v. Sangiacomo N.A., Ltd., 187 F.3d 363 (4th Cir. 1999), and notebooks, Stuart Hall Co. v. Ampad Corp., 51 F.3d 780 (8th Cir. 1995).

[26] Chevron Chem. Co. v. Voluntary Purchasing Grps., Inc., 659 F.2d 695, 702 (1981) ("[T]rademark law requires a demonstration of 'secondary meaning' only when the claimed trademark is not sufficiently distinctive of itself to identify the producer.").

[27] *Wal-Mart Stores*, 529 U.S. at 212.

[28] *Two Pesos*, 505 U.S. at 766 n.4 (citing RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 13 cmt. e (Tentative Draft No. 2, 1990) and Inwood Labs., Inc. v. Ives Labs., Inc., 456 U.S. 844, 851 n.11 (1982)).

[29] Ferrari S.P.A. v. Roberts, 944 F.2d 1235, 1240 (6th Cir. 1991).

[30] *Ashley Furniture*, 187 F.3d at 377.

such a reputation in the consumer's mind as to have the design of the product act as an immediate identification of its source, i.e., the manufacturer could replace a logo with that design to identify its product to the consumer, then secondary meaning is established, and the product's design is protectable under trademark law.[31]

In this way, trademark law grants protection to not only names, but also to other aesthetic features of products that identify the source of those products to consumers, such as packaging or design.

C. Utilitarian Functionality

As discussed above, the most often-cited purpose of trademark protection is not product innovation or unfair competition, which concentrate on businesses' proprietary rights, but consumer protection.[32] Traditional intellectual property scholarship teaches that the goal of encouraging product innovation is achieved through patent law, not trademark law.[33] Trademark law, therefore, attempts to carve out features from trademark protection that might otherwise be patentable, so as not to overlap with patent law and grant protection to useful, functional features without meeting the patenting standards. This carve-out concept is called functionality.[34]

It is desirable to preserve patent law as the main legal vehicle for encouraging scientific innovation and protecting useful ideas because patent law exacts several compromises on behalf of society from a patent holder in exchange for a limited monopoly, and trademark law does not.[35] While the owner of a patent gets a form of monopoly over an invention, the grant of rights is limited to twenty years; in contrast, the owner of a trademark can receive exclusive use of the mark for as long as it is in use.[36] After twenty years, any person can reproduce a patented technology without risking infringement.[37] The same is not true of trademarks. Additionally, a patent holder must disclose every useful aspect of an invention specifically; he must let the public know "the manner and process of making and using it . . . [in] exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same . . . ."[38]

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31 Inwood Labs., Inc. v. Ives Labs., Inc., 456 U.S. 844, 851 n.11 (1982).

32 *See supra* Part II.A.

33 MCCARTHY, *supra* note 2, § 2:3.

34 *Id.*

35 Utility Examination Guidelines, 66 Fed. Reg. 1092, 1093–94 (January 5, 2001) ("The patent system promotes progress by securing a complete disclosure of an invention to the public, in exchange for the inventor's legal right to exclude other people from making, using, offering for sale, selling, or importing the composition for a limited time.").

36 35 U.S.C. § 154 (2006) (stating that the patent term ends twenty years from the date a patent application was filed); 15 U.S.C. § 1059 (2006) (stating that all trademark registrations can be renewed for successive ten year periods with submission of a renewal application, an affidavit of continuing use, and a fee).

37 35 U.S.C. § 154 (2006).

38 35 U.S.C. § 112 (2006).

By limiting the time of exclusive rights and requiring complete disclosure of the scientific processes used to develop useful articles, patent law allows the public to benefit from the usefulness of an invention by ensuring that its use will not be restricted to only one player in the marketplace after the patent term expires. Patent law also promotes further scientific innovation by ensuring that, once a patent expires, the public can use the processes disclosed in the patent to improve upon an invention without risking infringement.

In contrast to patent law, trademark law aims to protect only that which primarily identifies one product source from another; it does not grant protection to useful or functional methods of identifying products.[39] This bifurcation of source identification qualities from useful qualities is called functionality or the functionality bar.[40] Functionality is further divided into two types: (1) utilitarian functionality and (2) aesthetic functionality.[41]

Utilitarian functionality is trademark law's attempt to carve out functionally useful features that could qualify for protection under patent law.[42] The correct legal test for determining whether a product feature is functional in the utilitarian (or traditional) sense is whether the feature "is essential to the use or purpose of the article or if it affects the cost or quality of the article," as stated in *Qualitex*.[43] Whether or not the protection of a feature stifles effective competition is not a test of utilitarian functionality, but of aesthetic functionality, which will be discussed in Section E.[44] When determining whether or not trademark protection of a feature is barred by the doctrine of utilitarian functionality, a court must look only to the *Qualitex* test above and not to any competition enhancement rationale.[45]

D. Interaction of Trademark, Copyright, and Patent Laws

While distinguishing patent law from trademark law (and thereby introducing the concept of utilitarian functionality), and before distinguishing aesthetic functionality from utilitarian functionality, which is the focus of the next section, it is helpful to briefly outline the differences between copyright and trademark protection and demonstrate that one is not a substitute for the other. Copyrights are accorded to creative works and, like patents, they are intended to encourage innovation and are limited in time.[46] Trademarks, on the other hand, as discussed above,

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39 *See, e.g.*, Keene Corp. v. Paraflex Indus., Inc., 653 F.2d 822, 824 (3d Cir. 1981) ("The purpose of the rule precluding trademark significance for functional features is to prevent the grant of a perpetual monopoly to features which cannot be patented.") (citing Sylvania Elec. Prods. v. Dura Elec. Lamp Co., 247 F.2d 730, 732 (3d Cir. 1957)).

40 *Id.* at 824–25.

41 MCCARTHY, *supra* note 2, § 7:67, § 7:79.

42 *Id.* § 7:67.

43 Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 165 (1995) (citing Inwood Labs., Inc. v. Ives Labs., Inc., 456 U.S. 844, 850 n.10 (1982)).

44 TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23, 32–33 (2001).

45 *Id.*

46 18 AM. JUR. 2D *Copyright and Literary Property* § 2 (2004).

are protectable for the purpose of distinguishing one product from another.[47] There are times when copyright and trademark protection might both be available, in which case just one of the two suffices to prohibit infringement.[48] For instance, an artistic, creative drawing might be used as a trademark and, at the same time, be eligible for copyright protection. A few notes from Gershwin's "Rhapsody in Blue" may be used as a trademark to identify United Airlines in commercials,[49] while the music is also clearly protectable under copyright law.[50]

However, trademarks consisting of one word, like "Gucci" or "Tide," or of simple trade dress that do not necessarily have enough original material to qualify for copyright protection are protectable only under trademark law and only in certain situations.[51] One cannot copyright, for example, the triangle shape or a commonplace word like "universal."[52] Everyone is entitled to use a geometric shape or common place word, but not everyone is entitled to use it in the same way, and that is due to trademark law.[53]

While a company cannot trademark the triangle shape, a company that displays its name inside of a triangle, forming a logo, might achieve trademark protection for the logo as a whole, including the triangle, and the USPTO might decide that another company operating in the same market space cannot also display its name in a triangle because it would confuse consumers. Whether or not a certain logo will be registered by the USPTO as a trademark or rejected for being confusingly similar to a prior trademark is a highly fact-specific question that centers around preventing confusion.[54]

Preventing confusion is a context-specific goal. The actual trademark is, of course, one element of it, but the space in which the mark is used and the intended consumers of a brand are also important factors.[55] While it might be confusingly similar to have two airlines called "Delta," both Delta Airlines and Delta Faucet Company are able to coexist because consumers are not likely to accidentally purchase a plane ticket from Delta Airlines when they meant to purchase a faucet from the other Delta company. Trademarks are therefore often protectable only in the sphere in which a company operates or could be expected to operate.

The ability to restrict the use of an otherwise communal-property concept, like the triangle shape, in a certain space to avoid consumer confusion is the value of trademark protection. For this reason, it is important to note that the elimination of

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47 MCCARTHY, *supra* note 2, § 6:3.
48 *Id.* § 6:14.
49 Jane L. Levere, *Old Slogan Returns as United Asserts It Is Customer-Focused*, N.Y. TIMES, Sept. 20, 2013, at B7.
50 17 U.S.C. § 102 (2006).
51 MCCARTHY, *supra* note 2, § 6:14.
52 *Id.*
53 *Id.*
54 *Id.* § 23:25.
55 *Id.* § 23:19.

trademark protection under a doctrine like aesthetic functionality, which will be discussed next, cannot simply be redressed under copyright law. Trademark law, while related to copyright law, serves an entirely different purpose, which copyright law by and large cannot achieve. Strong trademark protection is therefore independently necessary.

It is also worth mentioning here that there is a form of patent protection available to "visual ornamental characteristics embodied in, or applied to, an article of manufacture."[56] This is called a design patent, as opposed to a utility patent, which is the most common type.[57] "A design patent protects only the appearance of the article and not structural or utilitarian features."[58] A design patent can provide protection to aesthetic features, like trademark law, but those features must be related to a particular article of manufacture.[59] The aesthetic features covered by a design patent can relate to the shape or configuration of an article of manufacture or they can be surface ornamentation, meaning that it "is inseparable from the article to which it is applied and cannot exist alone."[60] Therefore, a typical trademark in the form of a logo would not qualify for a design patent without being tied to a particular article of manufacture, but a piece of trade dress on an article that is, on the one hand, identifiable in the consumer's mind as the calling card of a certain manufacturer can be patented as a design as well.

The USPTO must make a determination of whether or not a certain design qualifies for a design patent, and design patents last only fourteen years from the date of grant.[61] What a design patent protects is a very specific ornamental configuration on a specific product.[62] What trademark law protects is an aesthetic feature that has developed secondary meaning in the eyes of consumers such that it serves as an identification of source. Though patent law and trademark law can both be used as protections for certain aesthetic features (just as copyright and trademark law overlap in certain cases), they serve fundamentally different purposes, last different amounts of time, and are, therefore, analyzed differently.

As a recap, aesthetic features can potentially achieve intellectual property protection under copyright law, trademark law, or in limited cases, patent law (as design patents). However, neither copyright law nor patent law have as their primary purpose to protect consumers and prevent confusion in the marketplace. Because preventing confusion requires perpetual protection and encouraging innovation arguably does not, trademarks are granted potentially unlimited protection terms, as

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[56] U.S. Patent & Trademark Office, *Design Patent Application Guide*, http://www.uspto.gov/patents/resources/types/designapp.jsp (last modified Aug. 13, 2012, 10:41:32 AM).

[57] *Id.*

[58] *Id.*

[59] *Id.*

[60] *Id.*

[61] *Id.*

[62] U.S. Patent & Trademark Office, *Design Patent Application Guide*, http://www.uspto.gov/patents/resources/types/designapp.jsp (last modified Aug. 13, 2012, 10:41:32 AM).

long as they continue to be in use. Aesthetic functionality should be analyzed in the context of trademark law and its fundamental goals. The application of aesthetic functionality as a doctrine under trademark law, which undermines trademark protection, should not be ignored because other forms of protection under copyright or patent law might be available in certain cases. These are distinct forms of intellectual property protection and each merits its own analysis. This article deals with analysis under trademark law.

E. Aesthetic Functionality, Defined

As was explained briefly in the Introduction, aesthetic functionality is a doctrine that allows competitors to copy a rival company's trademark if the mark satisfies a "demand for the aesthetic as well as for the utilitarian."[63] Like utilitarian functionality, aesthetic functionality carves out a certain subset of otherwise protectable trademarks from eligibility for protection, and therefore opens up that subset for imitation by competitors.[64] However, unlike utilitarian functionality, aesthetic functionality does not define "useful" in the traditional sense like the test in patent law; instead, it relies on a competition enhancement rationale that essentially defines anything that enhances a competitor's advantage in the marketplace as "useful" per se.[65] Under aesthetic functionality, a trademark's useful quality is its ability to supposedly enhance competition.[66] The test for whether or not a trademark is aesthetically functional is whether or not its "exclusive use . . . would put competitors at a significant non-reputation-related disadvantage."[67]

The Ninth Circuit's decision in *Pagliero v. Wallace China Co.* from 1952 is the pivotal decision in the area of aesthetic functionality.[68] Before *Pagliero*, aesthetic functionality was a concept rarely used by the courts; *Pagliero* paved the way for subsequent development of the doctrine.[69]

In *Pagliero*, a competitor successfully claimed that it needed to copy a china company's original designs on china plates in order to compete in the replacement-plate industry.[70] The china's original designer, Wallace China, was well-known in the hotel industry for its distinctive plate designs and high quality plates.[71] The court noted that "[p]urchase of hotel china is induced, in part, by virtue of its attractive appearance."[72] Hotels in the area had become accustomed to buying Wallace China designs and were not interested in replacing broken plates from a new manu-

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63 Pagliero v. Wallace China Co., 198 F.2d 339, 344 (9th Cir. 1952).
64 MCCARTHY, *supra* note 2, § 7:63.
65 *Id.* § 7:79.
66 *Id.*
67 Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 165 (1995) (citing Inwood Labs., Inc. v. Ives Labs., Inc., 456 U.S. 844, 850 n.10 (1982)).
68 *Pagliero*, 198 F.2d 339.
69 MCCARTHY, *supra* note 2, § 7:79.
70 *Pagliero*, 198 F.2d at 343–44.
71 *Id.* at 340.
72 *Id.*

facturer when they had already built up a reserve of Wallace China plates because they wanted uniform place settings.[73] The hotels did not want to have some plates with one design and others with new designs, and that fact kept them buying from Wallace China and made it difficult for new china companies to enter the replacement-plate market.[74]

The defendant in *Pagliero*, a manufacturer of imitation plates, presented evidence that hotels might be tempted to buy from a different china house if the design on the plates remained consistent.[75] Convinced that granting Wallace China exclusive use of its own designs on plates would stifle competition in the industry, the court reasoned:

> If the particular feature is an important ingredient in the commercial success of the product, the interest in free competition permits its imitation in the absence of a patent or copyright. On the other hand, where the feature or, more aptly, design, is a mere arbitrary embellishment, a form of dress for the goods primarily adopted for purposes of identification and individuality and, hence, unrelated to basic consumer demands in connection with the product, imitation may be forbidden where the requisite showing of secondary meaning is made.[76]

The reasoning in *Pagliero* basically leads to the conclusion that whenever consumers develop an affinity or preference for a mark, design, or distinguishing feature, the owner of the mark loses the right to exclusive use of that feature because its exclusive use by one owner would stifle competition.

One might argue that the holding in *Pagliero* makes sense because of the somewhat unique character of china—that it has to be matched perfectly, which is not always the case with other products. The imitation china company successfully argued that it was suffering from a significant non-reputation-related disadvantage. Hotels did not prefer Wallace China plates because they were better, but because they were entrenched in the hotel industry; once a hotel had invested in a certain brand of china, it could not switch to a different manufacturer unless it either threw away all of its old china or competitors were allowed to copy the design of the plates for consistency.[77]

This is not an unpersuasive argument when taken at face value, and the imitation company's challenge was apparent. In order to enter the china market, the imitation company would have had to find new hotels to sell china to (possibly outside its geographic region) or convince hotels that already used Wallace China to switch to its brand because of superior quality or price. However, that is essentially the case in every industry where there are pre-existing competing products.

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[73] *See id.* at 343–44 (stating that the design on the plates was the main reason for purchasing from Wallace China).

[74] *See id.* (stating that granting exclusive use of the plate designs would stifle competition).

[75] *Id.*

[76] *Pagliero*, 198 F.2d at 343–44 (footnote omitted).

[77] *Id.*

Granted, there is sometimes more flexibility to mix products than there might have been in *Pagliero*, but compatibility issues that cause consumers to stick with known brands are common in useful products. For example, software, which might be hard to integrate with a different company's software. Any decorating scheme, style, or attempt to project an image requires consistency. Companies of all kinds are constantly faced with the challenge of having to find new customers in established markets or convince other companies' clients to make sometimes difficult or inconvenient switches.

The idea that there are certain advantages that are reputation-related, resulting in protectable trademarks, and others that are non-reputation-related, resulting in unprotectable trademarks, is a slippery slope. *Pagliero* may be an extreme example of entrenchment in a market that was particularly hard to break into because of the perceived need for absolute uniformity, but there are plenty of situations along a spectrum whose extremes are (i) customers switching brands with every purchase and (ii) the situation in *Pagliero*. This article will take up such situations and argue that courts are ill-equipped to determine where on the spectrum aesthetic features fall.

Though even the decision in *Pagliero* was ultimately flawed under the analysis in this article, it is at least an example of the most reasonably arguable version of aesthetic functionality; one where it would be truly difficult to overcome entrenchment, from a practical perspective. However, on the basis of *Pagliero*'s reasoning, some courts have extended the reach of aesthetic functionality to situations in which the divestment of trademark protection was fundamentally unjustified, at odds with the purpose of trademark law, and dangerous in terms of possible repercussions. This article will go on to discuss famous cases disapproving aesthetic functionality and then present arguments against its acceptance as a viable doctrine.

F. Judicial and Scholarly Disapproval of Aesthetic Functionality

Aesthetic functionality is not a majority doctrine, and many courts have disagreed with it.[78] In fact, the Ninth Circuit, which pioneered aesthetic functionality in *Pagliero*, affirmed the doctrine in the seminal case *Job's Daughters* by disapproving the prior reasoning of the Fifth Circuit, as well as opinions by a district court in the Seventh Circuit and a state court appellate decision from Illinois.[79]

The Fifth Circuit squarely disagreed with the Ninth Circuit on the issue of aesthetic functionality in *Boston Professional Hockey Ass'n*.[80] In that case, the Fifth

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[78] *See, e.g.*, Bos. Prof'l Hockey Ass'n v. Dall. Cap & Emblem Mfg., Inc., 510 F.2d 1004, 1013 (5th Cir. 1975); Ferrari S.P.A. v. Roberts, 944 F.2d 1235, 1246 (6th Cir. 1991); Rolls Royce Motors, Ltd. v. A & A Fiberglass, Inc., 428 F. Supp. 689, 692–93 (N.D. Ga. 1977); Nat'l Football League Props., Inc. v. Consumer Enters., Inc., 327 N.E.2d 242, 247 (Ill. App. Ct. 1975).

[79] Int'l Order of Job's Daughters v. Lindeburg & Co., 633 F.2d 912, 919–20 (9th Cir. 1980) (disapproving of the reasoning by the courts in *Boston Hockey*, *Rolls Royce*, and *National Football League*).

[80] *Bos. Hockey*, 510 F.2d at 1008.

Circuit considered the legality of an NHL competitor manufacturing jerseys and other sports paraphernalia displaying NHL sports team logos without the NHL's permission.[81] "Interpreted expansively, *Boston Hockey* holds that a trademark's owner has a complete monopoly over its use, including its [aesthetically] functional use, in commercial merchandising."[82] The court stated that a professional sports team "has an interest in its own individualized symbol entitled to legal protection against . . . unauthorized duplication" because a team symbol is sold for its own intrinsic value rather than as a vehicle for selling some other good, which is the usual case with trademarks.[83]

To understand the court's distinction, consider for example, a trademark like "Tide" for laundry detergent. The average consumer might buy "Tide" brand laundry detergent in the supermarket based on the trademark "Tide," but not for the trademark itself. A consumer uses the "Tide" trademark as an indication of the source and quality of the detergent, but not to procure access to the trademark itself. In contrast, cases involving potential aesthetic functionality involve consumers who are, in large part, buying a product for the value of the product's trademark rather than, or in addition to, the value of the underlying product.[84]

With respect to NHL logo sportswear, the Fifth Circuit in *Boston Hockey* came out with a decision that is diametrically opposed to the Ninth Circuit's decision in *Pagliero*. The court stated:

> [a]lthough our decision here may slightly tilt the trademark laws from the purpose of protecting the public to the protection of the business interests of plaintiffs, we think that the two become so intermeshed when viewed against the backdrop of the common law of unfair competition that both the public and plaintiffs are better served by granting the relief sought by plaintiffs.[85]

The Fifth Circuit, like the Ninth Circuit, used a competition-related rationale to arrive at its decision.[86] However, unlike the Ninth Circuit, which held that not allowing imitation would stifle competition, the Fifth Circuit held that, because the defendant company would have no business but for the NHL's investment in its trademarks, it would be unfair competition to allow the defendant to free-ride on the NHL's efforts.[87] To allow this unfairness would incentivize the NHL to reduce future investment and that would stifle competition by ultimately providing the public with less desirable goods.

Aesthetic functionality has been "criticized and limited" by other circuits on similar unfair competition rationales.[88] For example, in *Ferrari S.P.A. v. Roberts*,

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81 *Id.* at 1009.
82 *Job's Daughters*, 633 F.2d at 915.
83 *Bos. Hockey*, 510 F.2d at 1010–11.
84 *E.g.*, *id.* at 1008; Pagliero v. Wallace China Co., 198 F.2d 339, 343–44 (9th Cir. 1952).
85 *Bos. Hockey*, 510 F.2d at 1011.
86 *Id.* at 1013.
87 *Id.*
88 Ferrari S.P.A. v. Roberts, 944 F.2d 1235, 1246 (6th Cir. 1991).

the Sixth Circuit held that aesthetic functionality did not bar the Ferrari car shape from receiving trademark protection.[89] In that case, the defendant was manufacturing imitation Ferrari car kits that could be mounted onto less expensive cars such as the Chevrolet Corvette or Pontiac Fierro to render those cars facially indistinguishable from a Ferrari to third parties.[90] The defendant argued that the imitation Ferraris did not constitute trademark infringement for three reasons:

1) The Ferrari shape cannot be protected by trademark law because it is functional in a utilitarian sense and can therefore achieve protection only under patent law;[91]

2) There is no consumer confusion between the imitation kit and a real Ferrari at the "point of sale";[92] and

3) The shape of a Ferrari cannot be protected by trademark law because it is aesthetically functional.[93]

As to utilitarian functionality, the court held that the shape of the Ferrari had developed sufficient secondary meaning to consumers to trump the utilitarian value of that particular shape.[94] It stated "courts have consistently rejected [the] argument that the availability of design patent protection precludes applicability of the Lanham Act for products whose trade dress have acquired strong secondary meaning."[95]

As to the argument that copying the car's shape did not cause consumer confusion at the "point of sale," the court held that trademark law's "likelihood-of-confusion" inquiry looks more broadly than the original consumer to also encompass situations where third parties might be confused as to source.[96] Under this holding, making a product which is confusingly similar to an original, even if only to third parties, can constitute trademark infringement.[97] This holding will become important when discussing problems with third-party confusion in Section III.F of this article.

As to aesthetic functionality, the court disapproved the doctrine in its entirety and held that the Ferrari car shape was eligible for trademark protection on unfair competition grounds.[98] The court stated that (1) disallowing trademark protection

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89 *Id.* at 1247.
90 *Id.* at 1238.
91 *Id.* at 1239.
92 *Id.*
93 *Id.*
94 *Ferrari S.P.A.*, 944 F.2d at 1239.
95 *Id.* at 1240.
96 *Id.* at 1244.
97 The court agreed that purchasers of the imitation Ferrari kit could not possibly be confused between the kit and an original Ferrari because they were informed of the non-genuineness of the kits and the kits were significantly cheaper than genuine Ferraris. *Id.* Regardless, it still held that the imitation amounted to trademark infringement because of the possibility of third parties being deceived by the replicas. *Id.* at 1245.
98 *Id.* at 1247.

would discourage Ferrari's investment in its brand, which would ultimately hurt consumers, and (2) allowing companies that did not contribute to such investment to reap the benefits of the car shape's desirability would be unjust.[99]

In addition to being rejected by several courts, aesthetic functionality has also been disapproved of by leading judicial scholars.[100] J. Thomas McCarthy, the author of the well known treatise on trademark law *McCarthy on Trademarks and Unfair Competition*, commented that "'[a]esthetic functionality' is an inappropriate response to a valid concern," explaining that trademark law's basic concept of utilitarian functionality is already broad enough to eliminate the often-cited concern about the possibility of stifling competition through overzealous trademark protection.[101]

McCarthy continued by debunking the explanation most often given in support of aesthetic functionality—that elements losing trademark protection are not necessarily used by consumers only as an indication of source and that therefore they should not be protected under trademark law:

> The concern [of proponents of aesthetic functionality] is over features that are merely ornamental and therefore not perceived by customers as indicia of origin—trademarks. However, trademark law has long had a rule to deal with that situation: the "merely ornamental" rule. The "merely ornamental" rule is simply a facet of the basic trademark factual question: is the disputed feature in fact perceived by customers as a trademark or not? Do customers perceive this feature solely as attractive ornamentation or also as a symbol that identifies and distinguishes a single source?[102]

Anything actually being used as a trademark by consumers to identify source should be protected under trademark law, and anything not used by consumers to identify source should not.

The important distinction is that there should not exist a situation where a name (like "Gucci") is actually used as a trademark to identify source but loses trademark protection because of other uses or features of the trademark, such as its desirability or attractiveness to consumers. McCarthy opines that the fact that a particular aesthetic feature is desirable to the public is not sufficient to argue that its exclusive use would be a serious impediment to competition: "[b]ecause the range of possible aesthetic designs and configurations is as infinite as are the tastes that desire them, according trademark protection to aesthetic features would not greatly hinder competition."[103]

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[99] *Id.*

[100] *See* MCCARTHY, *supra* note 2, § 7:81 (stating that aesthetic functionality is too vague and its application will lead to greater consumer confusion).

[101] *Id.*

[102] *Id.* (footnotes omitted).

[103] *Id.* (quoting Deborah J. Krieger, *The Broad Sweep of Aesthetic Functionality: A Threat to Trademark Protection of Aesthetic Product Features*, 51 FORDHAM L. REV. 345, 380 (1982)).

III. Arguments Against Aesthetic Functionality's Viability

A. Courts Should Not Perform an Anti-Competition Analysis with Respect to Aesthetic Features

Recall from *Pagliero* that the basis for aesthetic functionality arose when the defendant in that case, who wanted to be able to manufacturer imitation plates, argued that to allow the plaintiff to maintain exclusive use of its design would make it impossible for the defendant to compete in the replacement-plate market because it was suffering from a significant non-reputation-related disadvantage.[104] The defendant's basic argument was that, because hotels in the area were already using Wallace China and would not want plates with inconsistent designs, every time a plate broke they would continue buying replacement plates from Wallace China, not because the plates were necessarily preferable, but because the cost of replacing all of a hotel's china was so high as to effectively entrench Wallace China as the only viable supplier of plates and stifle competition in the industry.[105]

This argument is appealing on its face because it is indeed difficult to imagine a hotel switching out its entire china collection in order to change the pattern. As stated above, *Pagliero* is probably the best case scenario in which to make an argument in favor of aesthetic functionality.[106] But even here, the fundamental problem with the ruling is that, even though it might not seem intuitive, it is completely possible for a hotel to use various plate designs for different purposes or settings. The supposed incompatibility of the new plates with the old ones is a question of aesthetics. The hotels in *Pagliero* had determined that keeping all of their china the same would be more beautiful than mixing patterns or colors.[107] This may sound reasonable and maybe even obvious in this context, but that is a question of taste, which varies.

Unlike with functional incompatibilities, with aesthetic incompatibilities there is no actual, objective impediment to entering the market without the right to use someone else's intellectual property. An anti-competition rationale should only kick in when consumers cannot switch brands, even if they wanted to, because of non-reputational-related and non-aesthetically-related entrenchment. If consumers like a company and decide to stick with its products, there is no market failure and no entrenchment because consumers have choices.

When is it truly not discretionary for consumers to choose a new brand? Otherwise stated, when is it so cumbersome for consumers to switch brands without al-

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[104] *See* Pagliero v. Wallace China Co., 198 F.2d 339, 343–44 (9th Cir. 1952) (stating that the aesthetically pleasing design of the plates was a reason for purchasing them and that the inability to copy that design would make competition nearly impossible).

[105] *Id.*

[106] *See supra* Part II.E.

[107] *See Pagliero*, 198 F.2d at 343–44 (stating that without imitation of the plate designs, there could be no direct competition).

lowing some infringement of intellectual property that we must tolerate infringement to enable a potential sale by a competitor?

There are many situations where consumers could switch brands with less hassle than the hotels in *Pagliero* and they just choose not to. Some consumers are just loyal to certain brands, often with respect to products such as watches, cars, and clothing, regardless of the lack of practical impediments to buying other brands. It is not the case that because a consumer purchased a Rolex watch in the past, Rolex is the consumer's only option for a watch today. However, consumer loyalty is clearly something that exists and that brands work hard to develop. This is a reputational advantage in the market and there are clearly no anti-competition issues presented here. Consumer choice is king.

There are also plenty of situations where it might be difficult to switch brands, yet consumers sometimes manage to. This usually requires superior investment on the part of the competitor in question to minimize the difficulty of switching. In technology for example, it is often hard to integrate products with those made by different companies, such as certain software not being compatible with certain operating systems. This would be a technical or non-reputational advantage—entrenchment—just as the defendant argued was the case in *Pagliero*.[108] For useful, patentable items like software, the practical impossibility or prohibitive cost of presenting an alternative to an entrenched product becomes important and can lead to anti-trust problems.

Even in an anti-trust case, where is the line between (i) software that generates tied sales because it is incompatible with products manufactured by different companies and (ii) software that generates tied sales because it is designed to work so synergistically with other software from the same company that, although it would be possible to buy and use two different companies' programs, it would make sense to stick with a package? The intuitive answer is that, in the case of technically incompatible software, you could have an anti-trust issue, but in the case of synergies, you have true competition and choice.

However, the lines between the two scenarios can get blurred. It is almost always theoretically possible to develop around entrenchment in cases like the first, but it just might be too costly to materialize. Also, it can be costly not to gravitate towards a cost-effective solution, such as the second case. Buying different technology from the same company can reduce the costs of learning new systems, allow users to apply skills from one program to another, efficiently transfer data among programs, and deal with the same customer support team. So what is the difference?

The difference is really one of degree. In the first case, the word "incompatible" suggests that, absent being able to use the pre-existing compatible product,

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[108] *Id.* at 344.

there would have to be some new invention to allow sales by a competitor to occur. In the second case, the word "synergies" suggests that being able to use the pre-existing product along with a new one would be desirable, but not necessary. In both cases, whether due to incompatibility or synergies, consumers are more likely to buy a new product from the entrenched company with the pre-existing software than from a competitor whose product cannot or will not effectively sync. The cost of overcoming entrenchment as a competitor, however, may be drastically different between the two situations. We focus, not on the competitor, but on the likelihood that the entrenchment will be overcome, if that would benefit consumers.

The point at which, due to entrenchment, the costs of introducing a superior product into the marketplace are so high that the product will not be introduced, is the point at which anti-trust issues should come into play to preserve competition for the benefit of society. That point is difficult to identify and makes for interesting anti-trust litigation.

The premise of this article is that these issues should not even come into consideration when dealing with aesthetic features because there is no such thing as a non-reputation-related advantage when it comes to aesthetic features. Entrenchment for aesthetic reasons is a choice by the consumer and not real entrenchment.

Aesthetics are, by definition, a matter of taste. There can be nothing other than taste or reputation that governs peoples' aesthetic choices. Compatibility, the "need" for uniformity, and the relative desirability of lumping certain aesthetic features together is a matter of taste, which can change in a way that a physical or technical incompatibility among useful features cannot. There may be nothing a software manufacturer can do, short of inventing a new operating system, to introduce its software into the marketplace if it cannot use one that is patented. We may determine that such an option is too costly a requirement in that context and that it is economically beneficial to allow the software company to use or integrate with the existing system so society can realize the benefit of the software.

However, in the case of aesthetic products, who is to determine that two products are fundamentally incompatible? There is no objective criteria to determine which aesthetic items must go together or which cannot go together, as there is for functional features. The extra ambiguity presented by this subjective analysis would be an impermissible amount of discretion and variance in traditional anti-competition analysis.

In the case of useful, patentable articles, a judge must already contend with the difficult balancing of (i) society's interest in having a new product, (ii) the potentially prohibitive cost of bringing the new product to market without being able to use or integrate it into some previously patented technology, and (iii) the proprietary interests of the patent holder (along with the repercussions of discouraging future invention by allowing infringement).

This is already a difficult balancing act, and one that leaves significant discretion in a judge's hands. But at least in the case of functional features, it can be argued that the analysis must be undertaken, no matter how uncertain or discretionary the outcome, because there is a product at stake that simply cannot realistically enter the marketplace without invalidating some proprietary right. It is not consumer choices that are dictating this fact, regardless of how predictable or uniform consumer choices may be; rather, it is some external factor that makes consumer choice irrelevant. This absence of choice results in the necessity of undertaking the anti-competition analysis.

In the case of aesthetic features, by definition, that analysis does not have to be undertaken. In order to even contend with the anti-competition analysis described above, with respect to aesthetic features, a judge would first have to determine that an aesthetic feature cannot enter the marketplace without invalidating a proprietary right. This decision is simply too subjective. It should not be within the purview of a judge to determine when some aesthetic feature is so desirable as to prevent others from entering the marketplace and when it is not. By definition, if something is "so desirable" it is not preventing anything—there is a choice being made by consumers.

Who is to say that all plates must be the same at every single table and that it is not in fact nicer to have different plates for different areas of a restaurant, for different courses, or even on the same table at the same time? It would certainly be possible to mix neutral or monochromatic plates with almost any design. Similarly, who is to say that furniture must always be displayed as a matching set? There are designers that make a living by precisely counteracting that notion and implementing the art of creative mixing and matching.

The fact that consumers may not want to integrate a new look with a pre-existing one is a challenge for new competitors, but that will always be a consumer's choice, and choice is at the very heart of competition. If consumers do not buy certain plates because they choose to maintain aesthetic consistency, it is because they like aesthetic consistency more than the new plates, or the aesthetic effect of the new plates mixed with the old. That is a reputation-related disadvantage. It is a consumer preference that must be overcome in order to do well in the market.

There is no place in the aesthetic world where it could be objectively concluded that one must conform to a certain look in order to have a fair chance at competition without starting with the assumption that consumer tastes are a certain way. And even if consumer tastes are predictable and uniform, the very fact that they are tastes means that there is no anti-competition problem because there is choice.

The issue should not be "how predictable are consumer tastes and how likely is it that a competitor will be able to enter a certain market without using a popular trademark?" The fact that something might be a predictable failure does not render it a problem with respect to the market. If there is no consumer desire for any trademark other than the protected one in question, the market has made a choice

and has no need for a competing mark. The fact that there is no need for a competing mark is made evident by the fact that would-be competitors use aesthetic functionality to gain permission to imitate existing ones. Allowing competitors to use the desirable trademark may redistribute profits, but it cannot be justified on the basis that consumers would not otherwise have a choice; in the case of aesthetic features, they have already made it.

It would not do to divest producers of their proprietary trademark rights every time they developed a look that consumers liked more than their competitors'. In order to justify an exception to the law of trademark protection, it should be basically impossible for consumers to benefit from a new product unless the right to trademark protection is breached.

If the benefit to consumers is basically impossible to achieve without breach because of real, objective obstacles, then there is a legitimate anti-trust issue at hand, and judges should tackle it, even though it may not be a simple, predictable analysis. Where, as in the case of aesthetics, there is no real, objective obstacle, there is no need for judges to intervene on behalf of competition because the market has already spoken; there is no anti-competition issue. Whether a particular taste presents an objective obstacle or not is too subjective a question to be reliably determined by a judge.

B. Aesthetic Functionality Is Overbroad and Could Significantly Weaken General Trademark Law

It is difficult to define the outer limits of a doctrine that essentially allows competitors to use each other's trademarks without permission or association whenever doing so would arguably enhance competition. An argument for applying aesthetic functionality can be made, with varying degrees of persuasiveness, in any situation where the manufacturer of a product has gained a positive reputation among consumers who decide that they want to associate themselves with that manufacturer's trademark.

A particularly egregious example of the far-reaching applicability of the doctrine is the Ninth Circuit case *International Order of Job's Daughters*.[109] In that case, the court held that the group Job's Daughters, a women's organization related to the Masons, no longer had the exclusive right to display its trademark (a picture logo) on jewelry because the mark was being used as a symbol of association with the group rather than as an indication of the source of the jewelry.[110]

A competitor of the Job's Daughters group began producing jewelry with the group's logo to sell to members of the group and others wanting to show their affiliation with it.[111] Job's Daughters had been continuously using the mark since 1921,

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[109] *See* Int'l Order of Job's Daughters v. Lindeburg & Co., 633 F.2d 912 (9th Cir. 1980) (holding that the defendant was not using the marks as trademarks).

[110] *Id.* at 919–20.

[111] *Id.* at 914.

selling jewelry to its members through licensed jewelers.[112] Although the group declined to license the defendant as an official jeweler, the defendant continued to produce and sell jewelry bearing the group's distinctive mark.[113] The defendant argued that, because it did not designate the jewelry as "official" Job's Daughters jewelry (though it did use the group's official logo), it was not infringing on the group's intellectual property rights.[114] The court accepted the defendant's argument in a telling analysis that is worth excerpting in full:

> Application of the *Pagliero* distinction to this case has a special twist because the name "Job's Daughters" and the Job's Daughters insignia are indisputably used to identify the organization, and members of Job's Daughters wear the jewelry to identify themselves as members. In that context, the insignia are trademarks of Job's Daughters. But in the context of this case, the name and emblem are functional aesthetic components of the jewelry, in that they are being merchandised on the basis of their intrinsic value, not as a designation of origin or sponsorship.
>
> It is not uncommon for a name or emblem that serves in one context as a collective mark or trademark also to be merchandised for its own intrinsic utility to consumers. We commonly identify ourselves by displaying emblems expressing allegiances. Our jewelry, clothing, and cars are emblazoned with inscriptions showing the organizations we belong to, the schools we attend, the landmarks we have visited, the sports teams we support, the beverages we imbibe. Although these inscriptions frequently include names and emblems that are also used as collective marks or trademarks, it would be naive to conclude that the name or emblem is desired because consumers believe that the product somehow originated with or was sponsored by the organization the name or emblem signifies.[115]

The consequence of this reasoning is deciding that essentially any time a purchaser is not mistaken as to the origin of a product, it does not matter if the product displays an otherwise protectable mark because consumers should have free access to any aesthetic features that do not exclusively designate source, even if they primarily designate source, no matter who took the time and money to develop them.

To illustrate just how broadly aesthetic functionality can be applied, the court generalized its analysis above as potentially applying to marks involving "[the] organizations we belong to, the schools we attend, the landmarks we have visited, the sports teams we support, the beverages we imbibe."[116] Under this formulation, the Ninth Circuit might approve of manufacturing imitation Coca-Cola bottles upon some showing that kids these days would be more likely to buy that brand of soda because of its name. The imitation would be proper as long as the consumer is somehow given the opportunity to distinguish the original product from its imitation. If one wants to be seen drinking a Coca-Cola or feels some affinity with other Coca-Cola drinkers by virtue of a look and has the opportunity to decipher that the

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[112] *Id.*
[113] *Id.* at 914–15.
[114] *Id.* at 914, 920.
[115] *Job's Daughters*, 633 F.2d at 918.
[116] *Id.*

product they are buying did not originate at the Coca-Cola plant, what is the problem?

The imitation authorized under this holding would not consist merely of producing a similar variation of the "Coca-Cola" logo such as "Koka-Kola." Under this line of thought, competitors would even be legally authorized to produce beverages with the actual "Coca-Cola" trademark on the label, analogous to the jewelry in *Job's Daughters* on which the group's actual name and logo were imitated, as long as an actual and otherwise indistinguishable knock-off bearing "Coca-Cola" had some small distinguishing mark anywhere on the bottle to give consumers the opportunity to distinguish its source. It could be sold alongside real Coca-Cola soda and prominently bear the exact same trademark.

Because the rule announced in *Job's Daughters* essentially calls for some *de minimis* identification method, such as a tag, to allow consumers to distinguish source, while the prominent, identifying features of an article can consist of an imitation trademark and resemble an original product in every other way, this article will hereinafter refer to this rule as the "Tag Rule."

There are four major problems with the Tag Rule. Firstly, it causes a branding "race to the bottom" that undercuts the benefits that trademark law would otherwise provide to companies and consumers. Secondly, it disincentivizes the creation of quality trademarks and products which, contrary to traditional trademark theory, should be a recognized goal of trademark law. Thirdly, it fails to provide society with the same competition-enhancing benefits that traditional functionality law provides and cannot therefore be justified on the same grounds. Lastly, the rule causes third-party confusion, which weakens the ability to encourage socially conscious behavior in both consumers and corporations. The following sections address each of these problems at length.

C. Aesthetic Functionality Leads to a Branding Race to the Bottom, Causing an Inefficient Waste of Resources

The Tag Rule undercuts the benefits which trademark law would otherwise provide to businesses and consumers. Trademarks are important because they serve as a shortcut for quality control by consumers, create trust and goodwill between businesses and consumers, and save businesses money they would otherwise have to spend on re-proving the quality of their products to consumers with each new release.[117]

By announcing a rule that would require consumers to second guess the identifying features on which they have become accustomed to rely on when distinguishing source, the Ninth Circuit encumbers consumers' ability to shortcut their re-

[117] *See* Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159, 164 (1995) (stating that consumers use trademarks to identify products as being made by the same producer as products they previously liked or disliked).

search process and decreases the efficiency of sales transactions. Under the Tag Rule, consumers will have to know to look beyond the trademark or trade dress that would have previously indicated source to the small indication of source required by the Tag Rule. This indication will, almost by definition, be small and unnoticeable because the very purpose of a knockoff product is to imitate the original closely—to make it difficult to tell the two products apart—in order to enhance its sale potential. No one would buy a knockoff Lakers jersey if "Made by Knockoff Brand" was stitched in large letters just underneath the Lakers trademark. It is basically a universal requirement of imitation product sales that source indication be small and unnoticeable.

Because source identification under the Tag Rule must necessarily be small and unnoticeable, the process employed by consumers to differentiate products under the Tag Rule will require either some pre-purchase knowledge of where to look for the real indication of source, or a time consuming search by consumers for the tag at the point of sale. The most serious problem caused by the Tag Rule is that consumers may not know or take the time to search out the tag, which may result in the purchase of the wrong product. If consumers are poorly informed or fail to double check all tags correctly, the likelihood of confusion between authentic products and knockoffs increases. As discussed in the Introduction, such confusion is the very problem that trademark law was created to address.

Dissenters may argue that it does not matter if consumers buy the wrong product if the only potentially perceivable difference between an original and an imitation at the point of sale is the product's origin. But mistakes can be costly. For example, one soda company might use an ingredient in its soda that a competitor does not use and to which some consumers are allergic, even if there is no general problem with the ingredient. Though both companies make a generally harmless product, knowing its source might be essential to some consumers to protect their health. Likewise, a clothing manufacturer might use inferior or harmful products in its fabrics or dyes. A cosmetics company might conduct product testing on animals, a practice to which a consumer might feel morally opposed. But a consumer may also simply dislike the quality of an imitation product once he or she starts using it and therefore be deprived of utility and value he or she would have received from an original product. The entire purpose of trademark law is avoiding confusion as to source at the point of sale and arming consumers with obvious tools to differentiate between competing products. Increasing likelihood of confusion under the Tag Rule therefore undermines the primary benefit that trademark law was designed to confer upon consumers.

Even if, in the best-case scenario, consumers always check labels, tags, stamps, and other small indicia of authenticity allowed to replace traditional trademarks under the Tag Rule, and even if they never confuse an imitation product with an original, the Tag Rule still harms consumers and companies. Although there is a remote possibility that complete accuracy at purchase is achievable under the Tag Rule, do-

ing research to differentiate brand-name products from imitation ones and searching for tags on products is at least somewhat time consuming and costly to consumers.

Because trademarks as we conventionally think of them would no longer be indications of source to consumers under the Tag Rule, they would lose much of their value. The new indication of source would be tags, and conventional visible trademarks would become merely ornamental, as proponents of aesthetic functionality perhaps already believe them to be. This would cause a devaluation of name brand products and the companies that make them. A Lakers jersey cannot cost one hundred dollars if every company is allowed to produce them, so the Lakers brand could not logically be worth as much post-implementation of the Tag Rule.

Whether or not this devaluation matters is a debatable question, but recognizing devaluation under the Tag Rule as inevitable is a necessary step in this analysis. Proponents of aesthetic functionality would argue that the devaluation contemplated is not a real decrease in wealth, but merely a transfer of wealth from companies to consumers, because consumers are now getting the "same" product for less. That argument assumes that a consumer is satisfied with paying less money for a product that is worth less, whereas originally the consumer was in the market for an exclusive product and was willing to pay more for it. It is not for lack of cheap alternatives that people buy a Gucci purse.

Under aesthetic functionality, there is no guarantee that consumers who were originally willing to purchase a brand-name product will see a product that has been widely imitated as a desirable substitute to the one that was exclusive, or that they will want to purchase it. Price is not the only factor a consumer considers when purchasing a product, and in the case of consumers who are willing to pay a premium for brand-name products, price is clearly a less important factor than a brand name that increases the product's value in their eyes.

If we allow the Tag Rule to replace traditionally recognizable trademarks with small indications of source, consumers who care about brand names will grow savvy to the new indication of authenticity, and tags will become the new trademarks. Consumers wanting to distinguish themselves as owning authentic merchandise may then begin to display their tags, which would make imitation products recognizable once again. The danger is that courts will then start allowing imitation manufacturers to copy original tags as well so as not to stifle competition in the marketplace and thereby force original manufacturers to devise yet another new system of source identification. The inefficiency of such a branding race to the bottom is clear.

If we begin with the premise that consumers must always have some way to differentiate between products so that they can make informed purchases, why complicate the process by allowing competitors to copy traditional indications of source, making the source-identification process more nuanced, costly, and cumbersome? Consumers want to know what they are buying, and, especially in the case of consumers who are willing to pay for a brand-name product in the first place,

consumers want to display the quality of the products they buy. Accordingly, companies look for ways to differentiate their brands from other brands because that differentiation is necessary and vital to attracting consumers and staying in business.

Weakening trademark law through implementation of the Tag Rule will simply force buyers and sellers to invent new methods for proving and displaying authenticity. The new methods may not be as effective as traditional trademarks at avoiding consumer confusion among products. Further, even if effectiveness is achieved, these new methods will certainly be more costly than traditional trademarks and cause resources to be diverted from more productive uses.

D. Aesthetic Functionality Weakens Incentives for Companies to Invest in Their Marks and in Quality Products

In *Ferrari S.P.A. v. Roberts*, the Sixth Circuit opined that aesthetic functionality "discourages the development of appealing designs because such designs would be entitled to less protection."[118] The Sixth Circuit recognized that, although trademark law may not be explicitly focused on incentivizing the development of quality trademarks, it does ultimately serve that purpose.[119]

Articulations of this view are not as popular as the traditional view, which considers consumer protection as the only valid goal of trademark law and dismisses the goal of protecting companies' investments in their trademarks. However, legal historians have uncovered that traditional trademark law originally evolved from property law and natural rights theory and was originally focused on a firm's right to its mark:

> [T]rademark law was not traditionally intended to protect consumers. Instead, trademark law, like all unfair competition law, sought to protect producers from illegitimate diversions of their trade by competitors. Courts did focus on consumer deception in these cases, but only because deception distinguished actionable unfair competition from mere competition, which was encouraged. In fact, courts denied relief in many early trademark cases despite clear evidence that consumers were likely to be confused by the defendant's use. Invariably they did so because the plaintiff could not show that the defendant's actions were likely to divert customers who otherwise would have gone to the plaintiff. . . . [R]eading traditional trademark decisions in their proper historical and philosophical context shows that trademark law was never focused primarily on consumer interests. . . . Courts in the twentieth century rejected the traditional framework in favor of one that viewed the possibility of consumer confusion as an evil in itself.[120]

It is therefore not the case that consumer protection is the unique purpose of trademark law, though consumer protection has become an increasingly important facet of trademark law's existence.

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[118] Ferrari S.P.A. v. Roberts, 944 F.2d 1235, 1246 (6th Cir. 1991) (citing Keene Corp. v. Paraflex Indus., Inc., 653 F.2d 822, 825 (3d Cir. 1981)).

[119] *Id.*

[120] Mark P. McKenna, *The Normative Foundations of Trademark Law*, 82 NOTRE DAME L. REV. 1839, 1840–41, 1843 (2007).

Modern scholarship has essentially abandoned trademark law's original roots in unfair competition, but there is no reason that scholars today cannot revert to a consideration of the doctrine's roots as an important factor in motivating businesses. Recognizing trademark law's original unfair competition rationale legitimizes the argument that firms should be able to directly enforce their proprietary interests in their marks, if such recognition and protection makes economic or social sense.

Even if trademark law of today is and should be focused purely on consumer interests, corporate incentives to develop and maintain successful marks cannot be ignored. Because consumers use trademarks to differentiate between products and to protect themselves from harm, it is important that firms be incentivized to use, maintain, and police the infringing use of trademarks.

Strong enforcement of firms' property interests in marks also gives them more incentives to create quality products so as not to tarnish their brand names. If every firm were essentially indistinguishable from the next and the only way to sell a product was to produce it for less money or to manufacture it in greater quantities than a competitor, then firms would have no incentive to maintain quality. Sales would become a numbers game instead of an opportunity for companies to differentiate themselves. This would be extremely dangerous for consumers. Contrary to the belief that brand names harm consumers by inflating prices, the harm to consumers would be much worse if quality products ceased to be available due to business incentives to skimp on quality.

Strong trademark protection does not deprive consumers of the ability to buy low price products. Consumers are not required to take a brand name into account when making a purchase. Instead, they may choose to do so if and when they think that a brand name implies something special. The ability of consumers to choose based on price alone should drive down the cost of products whose prices are artificially inflated. But if consumers choose to pay more money for a brand-name product, they must value having that brand-name product over having the difference in the price of the brand- and non-brand-name product in cash.

A consumer's reason for buying a brand-name product is irrelevant. Whether a consumer thinks that one brand is better quality than another, that one company has superior business practices, or even simply that a brand is exclusive and the consumer desires an association with it, the consumer gains some kind of utility in excess of the price difference if that consumer chooses to pay more for a brand name. Therefore, it makes little sense to protect the consumer's interest by disincentivizing the making of brand-name products or lowering their value.

The consumer protection rationale for trademark law and the unfair competition rationale are two sides of the same coin. It does not make sense to say that, on the one hand, trademark law is aimed at protecting consumers, and on the other hand, it is completely indifferent to producer incentives to use, maintain, and invest in their brands. It is necessary for companies to produce, maintain, and invest in re-

liable and identifiable trademarks in order for consumers to realize the intended benefit of trademark law, even under the consumer protection rationale.

The disincentive to invest in trademarks created by aesthetic functionality is clear. The more positive, desirable, and recognizable a trademark is in the consumer's mind, the more likely it is to lose protection as a trademark on aesthetic functionality grounds. Under an aesthetic functionality regime, companies lose their incentive to create, maintain, and police the use of trademarks that help consumers differentiate between products. When consumers are less able to differentiate between products, companies lose their incentive to invest in the making of quality products that will benefit their reputations because consumers will not know the difference and companies will not be rewarded for their efforts.

Aesthetic functionality harms companies by making it difficult for them to differentiate themselves in the marketplace and requiring them to waste resources trying to attract business through other means. It also harms consumers because when companies need to cut quality to decrease price or increase supply in order to attract business, quality products become difficult to find.

Aesthetic functionality therefore undermines the purpose of trademark law, whether that purpose is defined as protecting firms' proprietary interests on an unfair competition rationale or as protecting consumers from harm. The assertion that consumer interests are advanced by the doctrine of aesthetic functionality at the expense of producers of brand names is logically inconsistent because each is dependent on the other; their interests are aligned in this regard.

E. Aesthetic Functionality Does Not Benefit Society Through Enhanced Competition in the Way Utilitarian Functionality Does

The belief that aesthetic functionality benefits society through enhanced competition reflects confusion regarding the competition enhancement rationale underlying the utilitarian functionality bar. Utilitarian functionality is a logical bar to trademark protection because it does not make sense to grant trademark protection to truly functional features, those that enhance the value of a product in objective and measurable ways. These features should be contrasted with ones that enhance the value of a product in a subjective way that is based purely on consumers' aesthetic tastes.

Granting scientifically or technically useful features trademark protection denies society the ability to benefit from them by subjecting them to perpetual monopoly control and, as discussed above, these features are best protected under patent law because of the compromises which patent law exacts from inventors on behalf of society. Subjecting objectively useful features to monopoly control stifles competition. When a feature is purely aesthetic, its value is derived purely from consumer preferences. These preferences often shift inversely with supply, and thus are not subject to the competition enhancement rationale.

The nature of most products whose trademarks might be held aesthetically functional is such that the more of those products that exist, the less consumers desire them. This is because the feature that makes such a product more expensive or valuable than it would otherwise be under an aesthetic functionality regime is the trademark, not the product. That trademark is devalued when it is imitated because it loses its distinctiveness and becomes like any other ornamental decoration. If the very feature that is valuable loses its value when it is imitated, then imitation is counterproductive, and prohibiting imitation will therefore not stifle competition.

For example, it makes sense to disallow trademark protection for the shape of a car when that shape renders the car more aerodynamic and faster than its competitors. By disallowing trademark protection in this situation, we ensure that other car manufacturers will be able to use the same aerodynamic shape to also produce fast cars. In such a situation, society is better off allowing imitation because imitation means that more consumers will have cars that actually move faster and more efficiently than they would otherwise. Similarly, it makes sense to disallow trademark protection of oddly shaped highway signs that withstand weather damage better than other highway signs because imitation means that society will benefit from a greater number of signs that withstand weather damage.[121]

In stark contrast to these two examples, it does not make sense to disallow trademark protection of an aesthetic feature that consumers want to buy on the rationale that society will benefit from increased competition. This is because an aesthetic feature's utility is derived wholly from consumers' subjective appreciation of it, and subjective appreciation often decreases when an aesthetic feature becomes common place.

This argument is most obviously applicable to situations in which a product is more desirable when it is exclusive, which is the case in the overwhelming majority of cases where aesthetic functionality could be a concern. Situations where a product is not more desired when it is exclusive are discussed later in this section. But most products such as clothes, cars, jewelry, and technology are almost always more valuable when they are new, exclusive, or produced in limited edition so that only a certain subset of the population can own them. In cases involving such products, as soon as competitors are allowed to copy the trademark of the product, the value enhancement attributable to that mark disappears.

The value of aesthetic features is fickle and subject to rapid devaluation because it is not an objective value to begin with. It would be more difficult to destroy the value of an objectively functional feature by increasing its supply, although some value is usually destroyed even in those cases because some value is almost always attributable to a desire to own something that the rest of the population does not. But the greater part of the value of an objectively functional feature

[121] *See* TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23 (2001) (holding that use of dual-spring design mechanism to keep outdoor signs upright creates inference of functionality).

is attributable to the ability of that feature to actually do something, such as making a car move faster or allowing signs to withstand stronger pressure. Because the functional portion of such a feature's value cannot be destroyed by increasing supply, it makes sense to allow imitation of objectively functional features.

When an objectively functional feature is imitated, even if some exclusivity value disappears, there is still enough value left in the feature for a greater number of people to enjoy it because its devaluation is minimal. This benefits society because more people can enjoy the feature, and the feature remains enjoyable because it retains its value. However, because the value of an aesthetic feature is based only on the subjective appreciation of consumers—there is basically no portion of it which is logically attributable to anything other than consumer taste—it rises and falls in almost perfect correlation therewith and becomes virtually nonexistent when consumers stop desiring the feature. For this reason, imitation simply destroys too much value in aesthetic features, and increased competition in the production of such features creates no benefit.

A numerical example regarding devaluation of aesthetic features that would be likely candidates for loss of protection under aesthetic functionality may be beneficial to concretely illustrate the point. Company A produces ten designer handbags. The actual utilitarian value of one handbag, which might include the price of leather and various hardware components, the value of the labor that went into designing and producing it, overhead, and its functional carrying usefulness, is $200. However, the company sells each handbag for $500. Therefore, $300 of each handbag's value is attributable to some aesthetic, non-utilitarian feature of the handbag. Because the company manages to sell a handbag for $500, it can be inferred that each consumer who purchased one placed a value of $500 or greater on that handbag and is therefore getting a benefit from the handbag of $500. Therefore, the total value of the handbags is $5,000 because there are ten people deriving $500 dollars of utility each from owing them.

Later, Company B produces imitation handbags and it doubles the number of handbags available in the marketplace. There are now twenty visually identical handbags in the marketplace, which renders the aesthetic feature they share less exclusive and desirable. For the sake of illustration, assume that the entire value of the utilitarian components of the handbag is maintained at $200 and that the value attributable to the aesthetic component is devalued by $250, so the desirable aesthetic feature now only increases the value of the handbag over its utilitarian value by $50. The price of a handbag that is visually identical is now $250, or half of what it was before. Although there are twice as many consumers enjoying handbags, each one of them is only deriving a utility of $250 because that is what the bags are now worth. The total value of the handbags is therefore still $5,000. Total value was not enhanced by imitation of the aesthetic feature.

The original ten consumers who purchased their handbags at $500 each and now see them valued at only $250 have suffered a loss of $250 each, amounting to a

total loss of $2,500, half of the total value of the handbags. The entire value of that loss was appropriated by Company B. By selling ten bags at $250 a piece, Company B earned $2,500 of value essentially stripped from the original ten consumers.

It can be argued that this example fails in accuracy because the purchasers of the original handbags are still deriving a utility somewhere beyond $250 even though convincing imitations are on the market at that price. In opposition, it can also be argued that owners of imitation handbags should be deriving a utilitarian value well below $200, since the craftsmanship and quality of the materials used in the imitation bags may be inferior to the original ones, even if those qualities are not obviously discernible at first glance. But for the sake of numerical simplicity and illustration, it can be assumed that those two factors cancel each other out.

Therefore, assume that the original consumers lost $2,500 in aggregate value, which was essentially appropriated by Company B. If the impact of the imitation ended there, while it may seem unfair for Company B to take $2,500 of value from the original consumers, one could be indifferent to the taking because it constitutes a mere transfer and no value was destroyed. However, value was actually destroyed. The original ten consumers were enjoying the entire $2,500 worth of utility that was appropriated, whereas Company B only had revenues of $2,500, from which it had to subtract the overhead costs of operating its factory and paying its workers, the cost of materials, the cost of packaging and shipping the bags, the cost of employing an intermediary to sell them, etc. So Company B actually kept less money than what the original consumers were deriving in utility before the imitation. This results in a net loss.

One might further break down the impact and say that even this net loss is acceptable because the value was really just further subdivided and transferred to Company B's workers, leather suppliers, landlords, salespeople, etc. This is true. These transfers are necessary stages for running the economy and spreading wealth. But no stage of a transaction is totally efficient; each stage at best involves waste and unnecessary effort. Devoting extra time and effectuating unnecessary transactions only to end up with the exact same value is a waste of resources because every time resources are transferred, waste occurs. If time and resources are not being spent on transactions that are likely to add value to the economy— at least in the aggregate—resources are actually being wasted.

To summarize the above scenario, allowing imitation of a product whose value is mostly attributable to an aesthetic feature, of which the value is extremely fickle and subject to devaluation based on consumer tastes, produced no gain. The numbers used in the scenario are invented, but they are based on logical assumptions and observations about the economy. Devaluation due to imitation will of course vary from product to product, depending on the nature of the product, the aesthetic feature in question, the target clientele, and various other factors. But the above scenario serves to illustrate the general problem that results from allowing imitation

of features whose value are in great part based on aesthetics, on the theory that doing so enhances competition or benefits consumers.

It is worth mentioning that there are certain products to which the devaluation argument illustrated above does not apply in the same way because an attitude of "the more the merrier" prevails with respect to those products. While the vast majority of products are meant for exclusive use, some rare products are actually targeted at communal use. Some proponents of aesthetic functionality believe that consumers should view all products this way, though this may be unrealistic, or that products which consumers do view as communal are immune from the devaluation rationale discussed above, making the imitation of such products' trademarks beneficial.

For example, a sports franchise may actually be more desirable in the eyes of consumers when its following is as large as possible. This might substantially counteract the devaluation of the team's logo on aesthetic appeal grounds, even if imitated on many jerseys, because consumers might place value on the logo that is independent from both source indication and subjective aesthetic appeal based on the belief that a sports brand is stronger when it has more fans.

Likewise, products made to promote charitable causes would fall into the communal category and might therefore also be somewhat immune to the devaluation argument. For instance, a T-shirt that people buy to show solidarity in fighting cancer can actually be more satisfying to wear when others are also wearing it because it reinforces the common goal of creating a positive impact. In such cases, where there is a public desire to actually share with as many people as possible, rather than the usual desire of people to use a product exclusively, aesthetic functionality may appear to make more sense.

But even in these cases, aesthetic functionality is ultimately a flawed doctrine. Although a sports fan might appreciate a team logo that is heavily imitated because that means the team has a lot of fans, his appreciation will fade under aesthetic functionality regardless of the communal nature of his feelings if, due to fans buying imitation products, the team loses money and can no longer attract good players. If the team itself cannot sustain its quality it will lose fans and even the communal aspect of the logo will lose desirability. Likewise, although it might not detract from a consumer's personal satisfaction to wear a T-shirt for charity that many other people are wearing, allowing imitation of the T-shirt detracts from the charity's ability to earn money. The fact that imitation causes the charity itself to lose traction in accomplishing its goals erodes the communal desirability of the logo in that case as well.

The case of communal products is somewhat of an anomaly in that a trademark or aesthetic feature might not be devalued by imitation for the same reason as it would be in the case of more common exclusive products. That does not mean that aesthetic functionality is therefore beneficial to society or consumers even in com-

munal product cases because imitation decreases the value of communal products as well, and enhanced competition does not rebuild it.

Determining whether or not aesthetic functionality makes sense necessitates looking at where the real value to the consumer of the feature in question is coming from. In the case of objectively useful features, the real value comes from a useful quality that is not subject to devaluation when it is imitated. A car will not lose power or speed because another car that imitates the useful feature is created. In the case of aesthetic features of exclusive products, which are the majority of products to which aesthetic functionality could apply, the real value comes from the subjective appreciation of the aesthetic feature in the eyes of consumers, which is inherently vulnerable to devaluation when the product is imitated. In the case of communal products, the real value comes from an underlying cause or goal that the trademark represents and not from the trademark itself, although that value is represented in an aesthetic manner by the trademark.

Though the real value of an aesthetic feature of a communal product does not come from subjective appreciation or exclusivity, it is still counterproductive to allow its imitation because its value comes from its ability to aid a certain cause. This ability is eroded when the feature is imitated because the cause loses funding to imitation producers. It is therefore essentially never beneficial to enhance competition through imitation of aesthetically functional features.

A final criticism of the devaluation argument with respect to communal products is the question: What is the difference between objectively useful features and aesthetic features of communal products? If both types of features derive their value not primarily from appreciation of aesthetics but from some underlying, objective benefit or accomplishment, why does it make sense to deprive only the first type of feature of trademark protection? If imitation is detrimental in a communal products case on the theory that the organization behind such products might not accomplish its communal goal if money is diverted to imitators, why are people not afraid that the makers of useful features will not be able to develop and sell those features if we deny them trademark protection?

The obvious answer is that people are concerned about the incentives and ability of businesses to invent useful features, and they address this concern by protecting the businesses' exclusive ability to exploit them. The interests are protected through patent law instead of trademark law for the reasons explained above in the discussion of utilitarian functionality.[122]

Aesthetic features are not protected under patent law. If these features lose protection under trademark law, they become subject to legal imitation, which is harmful to businesses that use the value of their aesthetic marks or brands to garner financial support from consumers. Sellers of communal goods who rely on their

[122] *See supra* Part II.D.

brands for sales value lose their ability to provide the communal goods consumers want to buy if their revenues decrease due to imitation.

As long as consumers buy a particular brand in order to support the cause or communal product being sold under that brand's name, there is no potential imitation problem because consumers would assumedly not want to buy an imitation product which they knew would not support the name brand's cause. However, in any case involving aesthetic functionality, which involves, by definition, a situation in which there is a market for imitation products, detracting revenues from producers of communal products becomes an issue.

A consumer may want to buy an imitation product in a communal product situation because that consumer's purchase might not actually be motivated by a desire to support the goal that it represents, but rather by the desire to appear to be doing so. If the consumer's intended benefit is to feel or look like he belongs to a particular group or supports a particular cause, he can achieve his intended benefit through the purchase of an imitation product. He will succeed in fooling the people around him without having to expend the money to actually belong or support. This classic free-rider problem is caused in this case by the concept of third-party confusion, which aesthetic functionality creates, as discussed at length in the final section of this article.[123] The ability to free-ride that aesthetic functionality provides to consumers is what might detract from communal products providers' ability to provide their products or services.

It is therefore harmful rather than beneficial to allow imitation of aesthetic features in both the usual case of exclusive products and in the exceptional case of communal products. It is important to recall that aesthetic functionality will only be an issue in cases where consumers might arguably be interested in buying an imitation product. If they are not, there is no argument for enhancing competition through imitation, and aesthetic functionality will never apply. In cases where consumers are drawn to a trademark for its exclusive value, that value will largely disappear upon imitation, making imitation useless at best, and probably harmful. In cases where consumers are drawn to a trademark for the underlying cause it represents, the trademark will lose its ability to provide revenue to support the underlying cause upon imitation. In either case, aesthetic functionality is not value enhancing.

F. Aesthetic Functionality Increases Third-Party Confusion, Which Makes Encouraging Positive Social Action More Difficult

The arguments against aesthetic functionality put forth thus far in this article have been mostly economic in nature. This section discusses the doctrine's negative impact on the ability to encourage social responsibility. The assertion is the following: because aesthetic functionality increases third-party confusion, it decreases the ability to judge others for their actions and to discourage negative be-

[123] *See infra* Part III.F.

haviors or encourage positive ones. Naturally, social problems can also manifest through economic consequences, but the focus of this last section will be slightly more subjective and morally oriented than the preceding ones. Regardless of whether or not one agrees with the criticism presented in this section, the above should be sufficient to illustrate the economic pitfalls of aesthetic functionality. Whether the reader agrees with the argument now presented will depend to a large extent on personal, social, and economic views.

This section starts by asserting that encouraging social responsibility in individuals and businesses is beneficial to society and that there are psychological, non-economic ways to do so. Rigid economists may disagree with the underlying premise that businesses have any social responsibility and perhaps even with the notion that individuals have any social responsibility in a moral sense. It might be argued that morality is the non-logical person's way of trying to understand what essentially boils down to a measured weighing of benefits against costs; what results in a positive is moral and what results in a negative is not.

Without imposing judgment on that view, this article proposes that social interaction and psychology play a large role in producing moral or beneficial behavior in people and that noneconomic factors such as peer pressure cannot be discounted as powerful behavioral influences. To achieve moral or beneficial behavior from people, it can be realistically necessary to exert a certain degree of social pressure to stop them from putting their own interests ahead of the rest of society. Since people are not always rational and will not always consider the long term effects of their actions on themselves or others, social pressure, applied correctly, and the desire to appear moral, serve important roles in incentivizing positive social action and deterring harmful social action.

Social responsibility ties into the doctrine of aesthetic functionality through the problem of third-party confusion, which aesthetic functionality exacerbates. Third-party confusion occurs when the original consumer of a counterfeit product is well aware of its source, but a third party seeing the product, unaware of its origin, mistakes it for authentic. Trademark law is meant to shield society from third-party confusion as well as original source confusion by the consumer.[124] Because aesthetic functionality would allow companies to legally imitate the distinguishing characteristics of competitors' products by using their competitors' trademarks, it inherently increases the incidence of third-party confusion.

It may at first glance appear that third-party confusion is not an issue that trademark law should address. It is tempting to analyze only the direct consumer's potential confusion on the theory that a third party is not owed candor from either the producer of an imitation product or its consumer, due to the fact that the third party is not a party to the sale. However, the argument presented here does not attempt to vindicate the rights of any third party to be provided with correct infor-

[124] *Ferrari*, 944 F.2d at 1244.

mation about the source of products that neighbors buy. Rather, it analyzes the original consumers' incentives to consider the interests of society in making purchasing decisions when given the ability to deceive third parties.

Third-party confusion is problematic for society because it hinders peoples' ability to assess others peoples' character by their actions, thus reducing their incentives to make socially conscious choices. Because people like to look good and socially appropriate in the eyes of others, they might adapt or eliminate negative behaviors in a social situation that they would otherwise engage in alone.

This section makes the assumption that people are greatly motivated by what others think of them. An intuitive illustration of the validity of this assumption is that a simple Gucci patent leather pump sells for $525,[125] while a similar leather pump by Steve Madden sells for only $99.[126] It is very difficult to believe that a Gucci pump holds more than five times the utilitarian value of a Steve Madden pump, considering they are made of the same key raw materials, both pass safety and comfort standards, and both are used for the same purpose.

The fact that products that use the same key ingredients and even display similar craftsmanship sell at radically different prices even though consumers are not logically getting radically different utilitarian value from them is evidence that people are motivated by what others think of the brands they buy. This is not to say that there are not good reasons for buying Gucci pumps, despite their higher price tag. But those reasons cannot truly be accounted for by utilitarian standards. Intuitively, they must at least involve the consumer's consideration of third party reactions to Gucci pumps to some degree.

The argument made in this section will therefore have the most applicability in situations where people are acutely motivated by what others think, and it will have the least applicability in situations where they are not. For instance, third-party confusion is a significant motivational problem when it comes to purchasing highly visible, easily distinguishable products such as cars, clothing, technology, or jewelry. It is a very insignificant problem when it comes to purchasing products that people do not routinely use to judge one another, such as laundry detergent.

To illustrate a typical situation in which someone might be motivated by another person's judgment of a brand they use, consider the following: if a man at the gym hears an attractive woman enthusiastically preaching to a friend about Nike employing child labor,[127] he then might be less likely to wear Nike shoes to that gym for fear of being seen and judged by the woman or her like-minded friends. If he is no longer comfortable wearing Nike shoes to that gym, he might be more like-

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[125] *Gloria Yellow Patent Leather High Heel Pump*, GUCCI, http://www.gucci.com/us/styles/321136BNC007212# (last visited Oct. 14, 2013).

[126] *Remix*, STEVE MADDEN, http://www.stevemadden.com/Item.aspx?id=95608&np=136_394 (last visited Oct. 14, 2013).

[127] This article is not claiming that Nike actually does this.

ly to buy a different brand of shoes on his next shopping trip. He might change his normal buying habits on the basis of someone else's opinion of his shoes.

While the man in the illustration might also be bothered by the child labor practices alleged by the woman, the harm to children in developing countries might be too remote and intangible to him to cause a change in his buying patterns in and of itself, especially if the design or pricing of Nike shoes are very important factors in his decision-making process. The judgment of people around him, however, presents a direct and immediate harm to him. Therefore, it has a better chance of changing his buying patterns than knowledge of the remote harmful practices would have alone.

Anecdotal examples of this principle shared by survey with the author include being shamed out of: (i) using makeup products produced by companies that conduct testing on animals, (ii) eating at McDonalds, (iii) driving an SUV or a foreign-made vehicle, (iv) buying non-local or non-organic produce, (v) smoking, (vi) littering, (vii) driving drunk, and (viii) buying plastic water bottles. They also include being shamed into: (i) donating money to charity, (ii) signing up for a charity walk or run, (iii) signing up for a weekend of beach cleanup, (iv) feeding the homeless, (v) volunteering in schools, (vi) supervising field trips, (vii) offering to bring refreshments, and (viii) offering to drive (this last one was common, including agreeing to drive both children and drinking adults, ideally separately).

What this boils down to is that peer pressure is a tool for making people take externalities into account in a noneconomic way. An externality, which can be positive or negative, is a consequence that occurs as a result of an action or inaction by an actor and that is not fully absorbed by that actor. The typical example of a negative externality is pollution. A person driving a car creates pollution in excess of what he actually breaths in. The optimal level of pollution is the one where the harm equals the benefits of the pollution-producing activity. Because a normal driver does not bear the entire burden of his pollution but does receive the entire benefit of driving, he will tend to over-pollute unless he takes others into account in his analysis of costs and benefits.

It cannot be assumed that people independently take others into account to the extent that they should all the time, although many people think that they do consider other people when they make decisions. It seems intuitive that other people analyzing their behavior often tend to exaggerate their altruism and minimize their selfishness, sometimes to an impressive degree. This makes it possible and even likely that people might also each consider themselves better social citizens than they really are, which is why some external help in recalibrating the decision making process can sometimes prove beneficial. Help in correcting selfish impulses can be administered in both economic and noneconomic ways.

Economists typically argue that people need external pressure to act in ways that are optimal from the perspective of society when there are externalities involved. Or, to put it another way, people need to have their own interests shifted

into alignment with those of society by finding a way to artificially impose the costs and benefits caused by their activities onto them. Theoretically, this should produce optimal behavior where each activity is engaged in only to the extent that its costs do not outweigh its benefits in the aggregate.

The economic solution to the problem of over-pollution caused by cars, for example, is to tax the driver of a car to the extent of the aggregate harm that his pollution is producing. That will shift his personal considerations by making the pollution his problem through a tax. When the driver experiences the entire cost and benefit of driving, he is better equipped to make a rational decision about how much he will drive. He will not pollute more than his aggregate emissions are worth to him because he is taxed per unit of pollution produced, and thus pollution should drop to its optimal level. Economists would therefore correct a negative externality through some system of taxation, increasing the burden on the acting individual to that which he is actually imposing on society.

Externalities also exist in the positive sense. A positive externality is where a person's actions produce a benefit in excess of what is actually felt by that individual. For instance, a neighbor that beautifies and maintains his lawn increases the property value of surrounding houses as well as his own. He only benefits personally to the extent that the value of his own home appreciates. He will therefore probably stop investing in his lawn before the optimal amount of investment is reached in terms of realizing an aggregate benefit of the investment equal to the effort put forth by him. The economic solution for encouraging people to engage in productive activities that result in positive externalities is to compensate them through some sort of subsidy so that they realize the entire benefit of their positive action. Thus, the economic approach to correcting behavior that imposes negative consequences on society is taxation, and the approach to encouraging positive behavior is subsidization.

The economic solutions just explained make logical sense up to a point, but there are practical limitations to their applicability. There is no way to impose a tax on every socially irresponsible behavior, and taxes often do not take into account the difference in peoples' income, personal preferences, and motivations. This means that taxes will vary substantially in their ability to correctly incentivize different people. The same problem exists with subsidies. This is why we must also look to noneconomic as well as economic solutions when designing laws and social policy. This section suggests that trademark law take into account its effect on one powerful noneconomic solution for encouraging people to be more socially conscious: the use of peer pressure.

Just as economic solutions cannot produce a perfect realignment of peoples' incentives with society's goals, neither can peer pressure or the desire to be perceived as good. Some causes of social irresponsibility are more responsive to economic solutions, and others are more responsive to social or psychological ones.

Aggregating all possible incentivizing solutions together should be beneficial in causing people to properly consider the impact of their actions on society.

The occurrence of third-party confusion that aesthetic functionality causes impedes the functioning of the peer pressure solution to the problem of externalities. When people fear external judgment, they have at least some motivation to adjust their behaviors according to what they think is socially acceptable. Negative judgment by peers can be considered a sort of "social tax" that causes people to personally bear more of the negative effects of their actions that would otherwise be ignored by them as externalities.

The problem with the peer pressure solution is that it does not work if people can trick others into thinking they are behaving in a socially acceptable way while actually engaging in negative social behavior that is less costly to them. When there is no fear of judgment for negative behaviors, the incentive to make socially responsible choices is diminished.

Society might want people to be ashamed of buying products made by companies that employ bad labor practices, such as using child labor or paying excessively low wages. Society might want to discourage people from buying items manufactured by companies who excessively pollute the environment and have large carbon footprints. In the positive sense, society might want to reward companies who go out of their way to make costly but socially beneficial business choices such as paying fair wages and employing sustainable production practices.

It can be problematic, using economic incentives alone, to properly create such a world, because most of the negative or positive effects of consumer choices are not felt directly by consumers themselves. Consumer choices tend to affect vulnerable populations in less developed countries who are not large world consumers. This makes the effects resulting from consumer choices externalities. The only directly perceived and immediate disincentive for consumers to buy products from socially irresponsible companies is therefore fear of judgment by the people around them, who are not the same people likely to feel the impact of their purchase.

If the people cannot differentiate between the times when others consume from socially responsible companies and the times when they do not, peoples' incentives to consume from socially responsible companies are diminished. In turn, if people are not incentivized to support socially responsible companies, those companies will not be able to afford to engage in additional socially beneficial practices that may be expensive and will have to resort to cost-saving measures that are potentially socially harmful.

Aesthetic functionality erodes third parties' ability to differentiate between brands, which diminishes the influences on consumers to buy products from socially responsible companies. This in turn diminishes the incentives and even the ability of companies to engage in socially responsible practices. For instance, if a restaurant like one that might have bought china from the Wallace company in

Pagliero[128] could use cheap china manufactured in sweatshops by children instead of Wallace china (which, for the sake of illustration, will be assumed to have been hand painted by local artisans) without fear of losing consumers, it might do so. If consumers who care about social issues had no way of differentiating between the plates and could not use that information when deciding which restaurant to frequent, then restaurants spending more money on expensive china would be at a disadvantage in competition with restaurants not doing so.

In order to make investment in quality products and practices worthwhile, companies have to be able to market these investments to consumers, who must be able to differentiate their products from those of other companies. If consumers cannot tell what practices businesses are employing and what effect those practices have on society, they cannot reward companies for positive social action. This makes it difficult for socially responsible companies to compete with companies who cut costs.

It is important to note that third-party confusion is an issue in almost every case where aesthetic functionality is allowed. For example, in *Job's Daughters*,[129] allowing a competitor to copy the group's insignia on jewelry that the group did not manufacture or endorse created a situation where, though people buying the fake jewelry knew they were not affiliated with the organization, third parties would assume that they were. Allowing people to wear the group's insignia without supporting the group financially or being involved in its community service efforts could tarnish the group's image and hurt its ability to operate and draw real support in the long run.[130]

Similarly, in *Ferrari S.P.A*,[131] if the court had allowed fake Ferrari bodies to be mounted onto cheaper car models, the buyers of the fake Ferrari kits would have been perfectly aware that their Ferraris were not genuine, but onlookers would have been fooled. If Ferraris pollute less than the competition or if the company pays its workers more than competitors do, allowing other companies to sell cars that are indistinguishable from Ferraris hurts the Ferrari company's ability to continue making socially conscious choices. The Ferrari brand might even be further tarnished because, though an imitation Ferrari may look like the real thing, the motor might sound different or create visible smog, causing onlookers to assume that the quality of the Ferrari cars has diminished. This could further hurt Ferrari's bottom line and cause it to resort to harmful cost-cutting measures.

It is true that the price of a Ferrari cannot really be attributed to the fact that the car might pollute less than other cars or to the company's business practices. It is mostly attributable to the Ferrari name and reputation, as evidenced by the fact that

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[128] Pagliero v. Wallace China Co., 198 F.2d 339 (9th Cir. 1952).

[129] Int'l Order of Job's Daughters v. Lindeburg & Co., 633 F.2d 912 (9th Cir. 1980).

[130] *About Job's Daughters*, JOB'S DAUGHTERS INTERNATIONAL, http://www.jobsdaughters international.org/AboutUs/AboutUs.htm (last visited Oct. 14, 2013).

[131] Ferrari S.P.A. v. Roberts, 944 F.2d 1235 (6th Cir. 1991).

there was a market for imitation Ferraris. But the Ferrari name and reputation is the company's compensation for bringing some benefit to the marketplace. While it is hard to muster sympathy for the maker of such a luxury good, goods become luxurious because of a brand's dedication to quality and because consumers associate that brand with good things. Those good things may not necessarily be socially beneficial, but the two often go together.

Though it may seem intuitively unfair for Ferrari to enrich itself by selling cars for so much more than its competitors, the alternative to this injustice is much worse. If the possibility of capitalizing on one's investment in quality or social responsibility is diminished due to imitation, there will not even be a problem of imitation anymore. Quality and social responsibility will simply diminish for everyone.

Aesthetic functionality, through third-party confusion, can have an effect on various aspects of people's lives. It can affect incentives for people's choice of clothing, transportation, technology, consumables, and virtually every other good or service that is publicly consumed. It can therefore affect which companies people end up supporting as consumers. These choices, in turn, affect the quality of the products, working conditions, environment, and consumer safety that people can expect. It is important to protect the ability of society to exert pressure on individuals to be socially conscious so that they are incentivized to make positive decisions and in turn reward companies for making socially responsible business choices. If companies cannot differentiate themselves through positive social business practices and thereby gain consumer support, they will be forced to cut costs at the expense of considering social interests.

IV. Conclusion

Aesthetic functionality is an attractive doctrine at first glance. It promises to even the playing field between the haves and the have-nots by stripping companies of the ability to retain exclusivity over trademarks that gain popularity beyond their capacity to indicate source. However, it is a flawed doctrine that is against the interests of not only companies, but normal consumers as well. Aesthetic functionality is economically unsound because: (i) it allows judges to speak for consumers in the market, (ii) it is overly broad, (iii) it could require an inefficient amount of resources to be spent on identification methods, (iv) it disincentivizes company investment in quality marks and products, which enhances consumer confusion, and (v) it does not deliver the competition enhancing benefits that it was intended to deliver as a spin-off of traditional functionality.

Aesthetic functionality also creates a situation where third parties are confused as to the origin of goods and lose their ability to judge other consumers, leaving price conscious consumers free to ignore their social conscience and shop for cost-cutting deals, which then hinders the ability of socially responsible companies to compete in the marketplace. Trademark law should preserve protection against imitation in order to prevent consumer confusion and allow consumers to provide or

deny support to companies as they see fit. This protection will ensure that, if consumers value socially responsible practices, they will be able to support companies who employ such practices and those companies will be able to operate in socially beneficial ways.

Trademark protection does not eliminate the availability of bargain products, but the erosion of trademark protection could eliminate the availability of superior ones, whether that superiority is with respect to the quality of a product itself or with respect to its manufacture or effect on society. The option to buy a brand name does not hurt consumers. Eliminating that option can. Aesthetic functionality should therefore be rejected as an economically sound and consumer friendly doctrine because it is neither.

Standard-Setting, FRAND, and Opportunism

Christopher S. Yoo*

Dennis Carlton and Allan Shampine have offered an important contribution to the debate over how to interpret the obligation imposed by standard-setting organizations (SSOs) that holders of standard-essential patents license them on fair, reasonable, and non-discriminatory (FRAND) terms.[1] One of their central contributions is to distinguish between two distinct ways that participants can act strategically in the standard-setting process to generate returns that exceed the benefits associated with their innovation.

First, incorporation of a patented technology into a standard can insulate it from competition from substitute technologies.[2] In other words, the standard can allow the patent holder to use hold-up to appropriate the quasi-rents that are the product of the standard-setting process itself.[3] Second, the patent holder and the firms controlling the decision making of the SSO can collude to disadvantage a particular rival.[4] Carlton and Shampine view the mandate to impose fair and reasonable royalties as being designed to address the former type of strategic activity and the nondiscrimination mandate as being designed to curb the latter.[5]

While these types of opportunism pose serious problems, they are not the only potential sources of strategic behavior that should be taken into account.[6] Focusing

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1 Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531 (2013).

2 *Id.* at 534, 536–38.

3 For the seminal article on quasi-rents and hold-up, see Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297, 298 (1978).

4 Carlton & Shampine, *supra* note 1, at 541–43.

5 *Id.* at 545–47.

6 For additional reading on problems associated with FRAND, see Roger D. Blair & Thomas Knight, *Problems in Sharing the Surplus*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Thomas F. Cotter, *The Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Rebecca Haw, *Casting a FRAND Shadow: The Importance of Legally Defining "Fair and Reasonable" and How* Microsoft v. Motorola *Missed the Mark*, 22 Tex. INTELL. PROP. L.J. (forthcoming 2014); Keith N. Hylton, *A Unified Framework for Competition Policy and Innovation Policy*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); William H. Page, *Judging Monopolistic Pricing: F/RAND and Antitrust Injury*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); D. Daniel Sokol & Wentong Zheng, *FRAND in China*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014).

on the possibility that the patent holder may attempt to hold up those adopting the standard makes it easy to overlook that the patent system was itself created to address a different type of hold-up. The research and development costs needed to create the invention are sunk. After the invention has been created, customers can hold out in an attempt to drive the price charged by the patent holder down to marginal cost.

The patent system is designed to give the patent holder the protection it needs to prevent this latter type of hold up from occurring.[7] Imperfections in the patent system can cause slippage that may weaken the incentives for innovation. More importantly, even if patent protection is effective, customers may attempt to use the standard-setting process to circumvent the bargaining power made possible by the patent and use the FRAND process to drive the licensing fee closer to marginal cost, which is of course zero.

Another form of opportunism that does not play a key role in Carlton and Shampine derives from the fact that uncertainty can give rise to a moral hazard. Standard-setting processes can allow other firms to wait and see which inventions prove successful. If patent protection is perfect, inventors can insist on being paid full value for the risks they bore. FRAND licensing can allow other actors to pay below-market rates for successful inventions while avoiding bearing any of the costs of unsuccessful inventions. Any possibility that FRAND licensing may result in below-market prices creates the risk that either or both of these forms of opportunism may lower innovation below efficient levels.[8]

This is not to say that the types of opportunism that Carlton and Shampine have identified are not important. Indeed, they remain serious considerations that must be taken into account. At the same time, the simultaneous potential for opportunistic behavior that both weakens and strengthens patent holders' ability to appropriate the surplus created by their inventions raises important questions as to the proper balance between these offsetting considerations. SSOs and courts implementing FRAND obligations must understand how these countervailing forces play out in a particular context if they are to ensure that the patent system continues to serve as an engine of innovation.

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7 1 GREGORY E. UPCHURCH , IP LITIGATION GUIDE: PATENTS & TRADE SECRETS § 1:1 (2013). This point is also applicable to copyright law. Christopher S. Yoo, *Copyright and Product Differentiation*, 79 N.Y.U. L. REV. 212, 215 (2004).

8 *See* Daniel F. Spulber & Christopher S. Yoo, *Rethinking Broadband Internet Access*, 22 HARV. J.L. & TECH. 1, 47 (2008) (contemplating the necessity of rate and access regulation when market entry is "truly feasible").

FRAND in China

D. Daniel Sokol* and Wentong Zheng**

Standards are a ubiquitous part of life for compatibility and interoperability of certain products and services. They help to coordinate economic activity to ensure that various components work together.[1] This coordination creates a social welfare gain in many cases.

A standard-setting organization (SSO) coordinates across its members to develop and ensure the availability of standards.[2] Typically, SSO members disclose those of their patents that could be essential to a standard, and SSOs request disclosing members to commit to license those that are actually essential—it is not possible as a technical matter to make or use a standard-compliant product without infringing the patent—either on a royalty-free basis or on fair, reasonable, and nondiscriminatory (FRAND) terms.[3] However, in certain circumstances, standards may have anti-competitive effects through collusion[4] or through unilateral conduct such as patent hold-up.[5]

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1 U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 33 (2007) ("Industry standards are widely acknowledged to be one of the engines driving the modern economy.").

2 *See* Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1892–93 (2002) (giving an overview of standard-setting).

3 *Id.* at 1904–06.

4 Richard Gilbert, *Competition Policy for Industry Standards*, *in* OXFORD HANDBOOK ON INTERNATIONAL ANTITRUST ECONOMICS (forthcoming) (manuscript at 5), http://works.bepress.com/cgi/viewcontent.cgi?article=1040&context=richard_gilbert; Peter Grindley et al., *Standards*

FRAND is an issue that has received an extraordinary amount of attention worldwide, including from antitrust authorities.[6] One reason for this is that the interpretation and application of FRAND is uncertain, like many other contracts and statutes that rely on concepts of reasonableness without further definition.[7] Different proposals for defining or implementing FRAND abound, including some that are divorced from the facts and circumstances of a particular transaction. These include the incremental value of the next-best alternative standard,[8] an *ex ante* rate,[9] *ex post* market based terms,[10] and final-offer arbitration,[11] among others.[12]

Wars: The Use of Standard Setting as a Means of Facilitating Cartels: Third Generation Wireless Telecommunications Standard Setting, 3 INT'L J. COMM. L. & POL'Y, at 32 (1999), *available at* http://ijclp.net/old_website/3_1999/pdf/ijclp_webdoc_2_3_1999.pdf. Note that standard-setting by competing firms is not itself an antitrust violation. *See, e.g.*, Broadcom Corp. v. Qualcomm Inc., 501 F.3d 297, 309 (3d Cir. 2007) ("[P]rivate standard setting—which might otherwise be viewed as a naked agreement among competitors not to manufacture, distribute, or purchase certain types of products—need not, in fact, violate antitrust law.").

5 Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 2 (2012); Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1188 (2009); Lemley, *supra* note 2, at 1901–03.

6 Roger D. Blair & Thomas Knight, *Problems in Sharing the Surplus*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Thomas F. Cotter, *The Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Rebecca Haw, *Casting a FRAND Shadow: The Importance of Legally Defining "Fair and Reasonable" and How* Microsoft v. Motorola *Missed the Mark*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Keith N. Hylton, *A Unified Framework for Competition Policy and Innovation Policy*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); William H. Page, *Judging Monopolistic Pricing: F/RAND and Antitrust Injury*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Christopher S. Yoo, *Standard Setting, FRAND, and Opportunism*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014).

7 Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 57 (2005) ("It is widely acknowledged that, in fact, there are no generally agreed tests to determine whether a particular license does or does not satisfy a RAND commitment."); Damien Geradin, *The Meaning of "Fair and Reasonable" in the Context of Third-Party Determination of FRAND Terms*, GEO. MASON L. REV. (forthcoming), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2344454. There may be reasons that SSOs purposely keep FRAND language vague. *See* Doug Lichtman, *Understanding the RAND Commitment*, 47 HOUS. L. REV. 1023, 1027–29 (2010).

8 FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 194 (2011) ("Courts should apply the hypothetical negotiation framework to determine reasonable royalty damages for a patent subject to a RAND commitment. Courts should cap the royalty at the incremental value of the patented technology over alternatives available at the time the standard was defined.").

9 Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603, 637 (2007); Swanson & Baumol, *supra* note 7, at 21.

10 Roger G. Brooks & Damien Geradin, *Interpreting and Enforcing the Voluntary FRAND Commitment*, 9 INT'L. J. IT STANDARDS & STANDARDIZATION RES. 1 (2011).

11 Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1141 (2013).

12 *See, e.g.*, Philippe Chappatte, *FRAND Commitments—The Case for Antitrust Intervention*, 5 EUR. COMPETITION J. 319, 320 (2009) ("This article sets out the case for intervention under the competition rules and explores the numerous benchmarks that can be used for these purposes, including *ex ante* competitive rates, industry experience and expectations including the use of comparators and

FRAND-related issues are challenging because there are only a few cases interpreting and applying FRAND, with the overwhelming majority of license agreements determined through bilateral negotiations without the need for any dispute resolution process.[13] Issues of institutional design also contribute to this challenge. Different institutional choices on issues such as injunctions, patent scope, and the determination of fair and reasonable royalties across multiple jurisdictions complicate the FRAND analyses.[14]

It is in this context of complexity in both the substantive law and the institutional design on FRAND[15] that a relatively new antitrust regime, the Anti-Monopoly Law (AML) of China,[16] has now emerged.[17] Because of the size of China's economy, developments on FRAND in China potentially have a global impact on FRAND rates and even on the business models of innovative firms.[18] The operation of market forces will result in globalization of the lowest rate set by a court or agency for a particular patent or patent portfolio in a major jurisdiction. China is such a jurisdiction. Consequently, if China is more influential regarding antitrust

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the contribution made to the standard."); Damien Geradin & Miguel Rato, *FRAND Commitment and EC Competition Law: A Reply to Philippe Chappatte*, 6 EUR. COMPETITION J. 129 (2010) (arguing that the risks of hold-up and royalty stacking have been exaggerated and no antitrust intervention is appropriate to enforce FRAND commitments).

13 SSOs have made it clear that they desire license terms to be established through voluntary bilateral negotiations, with litigation used only as a last resort in the event negotiations fail. This is an especially important point when considering a jurisdiction like China that historically has preferred government rate-setting to private ordering.

14 *See, e.g.*, DANIEL A. CRANE, THE INSTITUTIONAL STRUCTURE OF ANTITRUST ENFORCEMENT (2011); Herbert J. Hovenkamp, *Competition in Information Technologies: Standards-Essential Patents, Non-Practicing Entities and FRAND Bidding* (Univ. of Iowa, Legal Studies Research Paper No. 12-32, 2012), *available at* http://ssrn.com/abstract=2154203; David A. Hyman & William E. Kovacic, *Institutional Design, Agency Life Cycle, and the Goals of Competition Law*, 81 FORDHAM L. REV. 2163 (2013); D. Daniel Sokol, *Antitrust, Institutions, and Merger Control*, 17 GEO. MASON L. REV. 1055 (2010).

15 *See, e.g.*, HEBERT HOVENKAMP ET AL., IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW (2d ed. 2009 & Supp. 2012).

16 Zhonghua Renmin Gongheguo Fanlongduan Fa (中华人民共和国反垄断法) [The Anti-Monopoly Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 30, 2007, effective Aug. 1, 2008) 2007 Standing Comm. Nat'l People's Cong. Gaz. 517, *available at* http://www.gov.cn/flfg/2007-08/30/content_732591.htm.

17 For an overview of the AML, see CHINA'S ANTI-MONOPOLY LAW: THE FIRST FIVE YEARS (Adrian Emch & David Stallibrass eds., 2013). *See also* Ping Lin & Jingjing Zhao, *Merger Control Policy Under China's Anti-Monopoly Law*, 41 REV. INDUS. ORG. 109 (2012) (discussing the AML's merger provisions and their enforcement); Pingping Shan et al., *China's Anti-Monopoly Law: What is the Welfare Standard?*, 41 REV. INDUS. ORG. 31 (2012) (examining the welfare standard that China's AML seeks to maximize); D. Daniel Sokol, *Merger Control Under China's Anti-Monopoly Law*, 46 N.Y.U. J.L. & BUS. (forthcoming 2014) (discussing the factors that drive merger outcomes under China's AML); Wentong Zheng, *Transplanting Antitrust in China: Economic Transition, Market Structure, and State Control*, 32 U. PA. J. INT'L L. 643 (2010) (examining the compatibility of Western antitrust models with conditions in China).

18 Ian King, *Qualcomm Says China Agency Started Anti-Monopoly Probe*, BLOOMBERG (Nov. 25, 2013, 4:33 PM), http://www.bloomberg.com/news/2013-11-25/qualcomm-says-china-agency-started-anti-monopoly-law-probe.html.

and FRAND, it will be because China will be inclined to set rates lower than other jurisdictions. In essence, what happens in China on FRAND will impact decision-making in the boardrooms of Silicon Valley.

This article discusses FRAND antitrust issues in China. Part I provides an overview of China's antitrust regime and its interaction with intellectual property rights. In doing so, it offers an explanation of the nature of the Chinese antitrust regime that builds upon both industrial organization and political economy literature. Part II discusses standard-setting in China and how FRAND-related issues are handled under Chinese standard-setting laws and regulations. Part III explores recent developments in Chinese courts that impact FRAND. In particular, it discusses *Huawei v. InterDigital* and its implications for global FRAND licensing. Part IV offers thoughts on the lack of transparency in China's antitrust regime as well as the use of industry policy in the FRAND setting and how these issues may negatively impact consumer welfare.

I. The AML in Broader Context

A. Goals of the AML

The AML came into effect in August 2008.[19] As with many competition law regimes, the AML has a number of goals in its enacting legislation.[20] Some of these goals, such as the economics-based goals of total welfare[21] or consumer welfare[22] and the politics-based goal of promoting the healthy development of the socialist market economy[23] may be in tension with one another.[24] In modern antitrust jurisdictions, industrial policy concerns for competitors are an anathema to sound antitrust policy.[25]

The potential tensions in the AML are further amplified by the newness of the AML in dealing with competition law and economics and the challenges of creating a competition law regime for a socialist market economy.[26] As a result of these po-

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19 The Anti-Monopoly Law of the People's Republic of China, art. 57.

20 *See* Roger D. Blair & D. Daniel Sokol, *Welfare Standards in U.S. and E.U. Antitrust Enforcement*, 81 FORDHAM L. REV. 2497, 2504–06 (2013) (providing a comparison of U.S. and E.U. antitrust goals); Herbert Hovenkamp, *Implementing Antitrust's Welfare Goals*, 81 FORDHAM L. REV. 2471, 2477–78 (2013) (discussing welfare goals in U.S. antitrust).

21 The Anti-Monopoly Law of the People's Republic of China, art. 28.

22 *Id.* art. 27.

23 *Id.* art. 1.

24 Adding to the Chinese complexity are three antitrust enforcement agencies with overlapping authority. *See* Huang Yong & Richean Zhiyan Li, *An Overview of Chinese Competition Policy: Between Fragmentation and Consolidation*, *in* CHINA'S ANTI-MONOPOLY LAW: THE FIRST FIVE YEARS, *supra* note 17, at 3, 6–7 (discussing the various enforcement agencies); Hao Qian, *The Multiple Hands: Institutional Dynamics of China's Competition*, *in* CHINA'S ANTI-MONOPOLY LAW: THE FIRST FIVE YEARS, *supra* note 17, at 15, 19 (explaining that agency powers are often not clearly defined, so agencies' enforcement efforts do not work smoothly together).

25 *See generally* Blair & Sokol, *supra* note 20, at 2504–05.

26 Yong Huang, *Pursuing the Second Best: The History, Momentum, and Remaining Issues of China's Anti-Monopoly Law*, 75 ANTITRUST L.J. 117, 121 (2008); Bruce M. Owen, Su Sun & Wen-

tential tensions, China has injected a significant amount of industrial policy into its competition law and policy,[27] at least relative to the United States and Europe.[28]

Further compounding the challenges facing the Chinese antitrust regime is the lack of procedural transparency in China's legal system, which operates under the constraints of the Chinese political system.[29] In the antitrust setting, the lack of procedural transparency and due process in China stands out as an outlier relative to international norms, particularly regarding mergers.[30] Sometimes the lack of transparency may mask limited capabilities on the part of agencies and courts in the economic analysis of antitrust issues. In other cases, the lack of transparency may mask industrial policy considerations that have little basis in antitrust economics (as might be the case in the Coca-Cola/Huiyuan merger[31]).[32] In this way, Chinese authorities are able to dress up their decisions to make them appear as if they are based on sound competition law principles when in fact the decisions were driven by other considerations, including industrial policy, to provide the decisions with a veneer of legitimacy. In other words, under Chinese antitrust reverse engineering, a politically-based decision may attempt to use Western competition law principles to reach the decision that the Chinese authorities have already made.[33]

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tong Zheng, *Antitrust in China: The Problem of Incentive Compatibility*, 1 J. COMPETITION L. & ECON. 123, 132–33 (2005).

27 *See* Sokol, *supra* note 14, at 1074 (providing an example of the prominence of industrial policy as a central concern); Deng Fei & Gregory K. Leonard, *The Role of China's Unique Economic Characteristics in Antitrust Enforcement*, *in* CHINA'S ANTI-MONOPOLY LAW: THE FIRST FIVE YEARS, *supra* note 17, at 59, 59 (stating that China attempts to fulfill many potentially conflicting social goals through the AML).

28 Blair & Sokol, *supra* note 20, at 2506, 2510.

29 *See* STANLEY LUBMAN, BIRD IN A CAGE: LEGAL REFORM IN CHINA AFTER MAO 2 (1999) (analogizing China's legal system to a bird in a cage). The drafters of the AML were very transparent from 2004 onward, and the enforcement agencies have been transparent on occasions with some of their implementing rules.

30 *See* COMPETITION COMM., ORG. FOR ECON. CO-OPERATION & DEV., PROCEDURAL FAIRNESS AND TRANSPARENCY 6 (2012) (discussing an agreement between thirty-four countries, not including China, to taken action to promote transparency and procedural fairness in the area of merger law). Some argue that the differences between European and Chinese antitrust are merely of degree rather than of kind. Sokol, *supra* note 14, at 1141.

31 *See* Yee Wah Chin, The High-Wire Balancing Act of Merger Control Under China's Anti-Monopoly Law 13 (Aug. 26, 2012) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2120280 (questioning the economic basis of MOFCOM's decision in Coca-Cola/Huiyuan).

32 Because of international norms that promote a competition policy based on developments in industrial organization economics, any policies that veer from sound competition economics face considerable international scrutiny.

33 For example, in 2012 the State Administration of Industry and Commerce of the People's Republic of China issued a draft IP enforcement guide on behalf of the three antimonopoly enforcement agencies. It pays lip service to the general ability to refuse to deal or license intellectual property using wording and reasoning similar to the 1995 Department of Justice and Federal Trade Commission's Antitrust Guidelines for the Licensing of Intellectual Property, but then imposes a very broad essential facilities provision applicable to dominant companies. Guanyu Zhishi Chanquan Lingyu Fanlongduan Zhifa de Zhinan (关于知识产权领域反垄断执法的指南) [Guide on Anti-Monopoly

Due to the competing goals of the AML and the lack of transparency, industrial policy often comes into play at the expense of rigorous antitrust analysis in Chinese antitrust decisions.[34] This may have occurred in the FRAND context in both mergers and conduct cases.[35] One example in the merger context is the Google/Motorola Mobility merger. In that case, the Ministry of Commerce (MOFCOM), the Chinese agency responsible for merger review, conditionally approved the merger based on a remedy of free licensing of Android for a period of five years to protect downstream Chinese Android platform users and to honor Motorola's existing FRAND commitments.[36] Of note is that even though Google had been under intense scrutiny before U.S. and European antitrust authorities, only in China was there a conditional remedy imposed for approval of the transaction, whereas U.S. and European antitrust enforcers focused on the transfer of patents and the lack of a change in the status quo.[37] In the conduct context, the possibility of industrial policy driving Chinese antitrust policy has emerged in *Huawei v. InterDigital*, which will be discussed in Part IV.

B. Intellectual Property Rights and the AML

This section presents a brief overview of the interaction between intellectual property rights (IPRs), the AML, and its implementing regulations to better understand the context of the Chinese antitrust FRAND policy. As discussed below, there is a significant amount of uncertainty under the AML and its implementing regulations as to the treatment of IPRs and FRAND-related issues. This uncertainty creates risks for both public and private antitrust actions.

Law Enforcement in the Field of Intellectual Property Rights] (proposed by St. Admin. for Indus. & Com.) art. 16–17 (China) [hereinafter SAIC Draft IP Enforcement Guide]; U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY (1995). This broad essential facilities provision goes far beyond what is required under U.S. and E.U. law, but is consistent with China's desire back in 2004 and 2005 when it was drafting the AML.

34 Deng Fei & Leonard, *supra* note 27, at 67–70.

35 *Id.* at 68.

36 *Id.* at 67, 70; MINISTRY OF COMMERCE, ANNOUNCEMENT NO. 25, ANNOUNCEMENT OF APPROVAL WITH ADDITIONAL RESTRICTIVE CONDITIONS OF THE ACQUISITION OF MOTOROLA MOBILITY BY GOOGLE (2012), *available at* http://english.mofcom.gov.cn/article/policyrelease/domesticpolicy/201206/20120608199125.shtml Though MOFCOM did mention the term "FRAND," it did not elaborate what in its view FRAND is, and that will likely become an issue when MOFCOM reviews compliance with its decision. MINISTRY OF COMMERCE, *supra*.

37 Press Release, U.S. Dep't of Justice, Statement of the Department of Justice's Antitrust Division on Its Decision to Close Its Investigations of Google Inc.'s Acquisition of Motorola Mobility Holdings Inc. and the Acquisitions of Certain Patents by Apple Inc., Microsoft Corp. and Research in Motion Ltd. (Feb. 13, 2012), *available at* http://www.justice.gov/opa/pr/2012/February/12-at-210.html; Press Release, Eur. Comm'n, Mergers: Commission Approves Acquisition of Motorola Mobility by Google (Feb. 13, 2012), *available at* http://europa.eu/rapid/press-release_IP-12-129_en.htm.

The AML, like many antitrust laws, covers agreements, abuse of dominance, and mergers.[38] Article 55 of the AML, a provision in the Supplementary Provisions section of the law, addresses intellectual property.[39] It states that the AML does not apply to business operators' use of their IPRs unless they are using them to restrict competition in the market.[40] To date, it remains unclear under Chinese antitrust jurisprudence how Article 55 may be applied to distinguish between legitimate uses of intellectual property and abuses of intellectual property. However, a draft enforcement guide on IP-related antitrust issues released by a task force led by the State Administration of Industry and Commerce (SAIC) in 2012 states that abuses of IPRs are not a special category of prohibited conduct under the AML; rather, they fall under the AML's general prohibitions of monopolistic agreements, abuse of dominance, and anticompetitive mergers.[41]

In addition to the SAIC Draft IP Enforcement Guide, which was issued on behalf of all three antimonopoly enforcement agencies and supposedly represents the views of all three agencies, SAIC also released a Draft IP Enforcement Regulation in 2013 that would be binding in SAIC proceedings only.[42] The SAIC Draft IP Enforcement Regulation addresses the same issues and contains more or less the same provisions (with slight differences in language) as the Draft IP Enforcement Guide. Article 7 of the Draft IP Enforcement Regulation, for example, covers refusals to license.[43] It states that there is a violation of the AML when an undertaking refuses to license under reasonable terms those of its IPRs that constitute an essential facility.[44]

Under the 2012 Draft IP Enforcement Guide, the exercise of IPRs is subject to the prohibition of horizontal agreements under Article 13 of the AML[45] and the prohibition of vertical agreements under Article 14 of the AML.[46] Article 13 of the SAIC Draft IP Enforcement Guide states that undertakings that are in a competitive

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38 GLOBAL ANTITRUST AND COMPLIANCE HANDBOOK (D. Daniel Sokol et al. eds., forthcoming 2014) (manuscript at ch. 10) (on file with authors) (giving an overview of the coverage of specific types of antitrust behavior covered under the AML).

39 Zhonghua Renmin Gongheguo Fanlongduan Fa (中华人民共和国反垄断法) [The Anti-Monopoly Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 30, 2007, effective Aug. 1, 2008), 2007 Standing Comm. Nat'l People's Cong. Gaz. 517, art. 55, *available at* http://www.gov.cn/flfg/2007-08/30/content_732591.htm.

40 *Id.*

41 *See* SAIC Draft IP Enforcement Guide, *supra* note 33, art. 4.

42 For the latest version of the draft regulation, see Gongshang Xingzheng Guanli Jiguan Jinzhi Lanyong Zhishi Chanquan Paichu, Xianzhi Jingzheng Xingwei de Guiding – Zhengqiu Yijian Gao (工商行政管理机关禁止滥用知识产权排除、限制竞争行为的规定 - 征求意见稿) [Rules on the Prohibition of Abuses of Intellectual Property Rights for Purposes of Eliminating or Restricting Competition – Draft for Comments] (drafted by St. Admin. for Indus. & Com., Sept. 18, 2013) (China) (on file with authors).

43 *Id.* art. 7.

44 *Id.*

45 The Anti-Monopoly Law of the People's Republic of China, art. 13.

46 *Id.* art. 14.

relationship with one another are prohibited under Article 13 of the AML from reaching agreements to (1) fix or change IPR licensing fees or the prices of products containing IPRs, (2) restrict the number of IPR licenses or restrict the quantity of the production or sales of products containing IPRs, (3) divide the market for IPR licensing or divide the sales market or input-procurement market for products containing IPRs, (4) restrict the purchase or development of new technologies or restrict the purchase or development of new equipment or new products containing IPRs, (5) jointly refuse to license IPRs to a specific transaction counterparty or jointly refuse to sell products containing IPRs to a specific transaction counterparty, or (6) engage in other conduct that constitutes abuses of IPRs as determined by the antimonopoly enforcement agencies.[47] Article 14 of the SAIC Draft IP Enforcement Guide states that undertakings are prohibited under Article 14 of the AML from reaching agreements with transaction counterparties to (1) fix the resale prices of products containing IPRs, (2) restrict the minimum resale prices of products containing IPRs, or (3) engage in other conduct that constitutes abuses of IPRs as determined by the antimonopoly enforcement agencies.[48] However, pursuant to Article 15 of the AML, anticompetitive agreements may be exempted from Articles 13 and 14 of the AML if they are reached in order to unify product specifications.[49]

In the area of abuse of dominance, Article 16 of the SAIC Draft IP Enforcement Guide provides that an undertaking possessing a dominant market position may violate Article 17 of the AML if it abuses its IPRs by (1) licensing its IPRs at unfairly high prices, (2) refusing to license its IPRs without justification, (3) restricting transaction counterparties to obtain IPRs only from it or other undertakings designated by it, (4) tying the sales of products containing IPRs or imposing other unjustified conditions involving IPRs, (5) discriminating against similarly-situated transaction counterparties on terms of licensing such as licensing fees, or (6) engaging in other IPR-related conduct that constitutes abuse of dominance as determined by the antimonopoly enforcement agencies.[50] Furthermore, Article 17 of the SAIC Draft IP Enforcement Guide offers additional guidance on refusals to license IPRs.[51] It provides that refusals to license are one way of exercising IPRs and the antimonopoly enforcement agencies will not, as a general matter, require IPR-holders to shoulder the obligation of dealing with competitors.[52] However, the Guide then provides for a host of exceptions that threaten to swallow this general rule—IPR-holders possessing a dominant market position may violate the abuse of dominance provisions of the AML if their refusals to license IPRs are on non-equal, discriminatory terms, or if the IPRs in question are an essential facility and refusal to license

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47 SAIC Draft IP Enforcement Guide, *supra* note 33, art. 13.

48 *Id.* art. 14.

49 The Anti-Monopoly Law of the People's Republic of China, art. 15.

50 SAIC Draft IP Enforcement Guide, *supra* note 33, art. 16.

51 *Id.* art. 17.

52 *Id.*

such IPRs results in the inability of the person seeking the license to effectively compete in the relevant market.[53]

What exactly all of these provisions mean in practice is not yet clear. What would be considered an unfairly high price, for example, is highly uncertain under Chinese law given that Chinese law does not offer clear guidance on what is an acceptable fee.[54] In a comparative context, charging high prices does not violate United States antitrust law[55] and is rarely challenged in Europe.[56] However, in the Chinese context, such a provision might be used to extract or impose better terms for a FRAND licensee.[57] These legal ambiguities create significant uncertainty for FRAND licensing in China.

II. Standard-Setting in China

A. Overview of Standard-Setting in China

The conventional paradigm of standards being set by voluntary SSOs comprised of private parties does not hold in China. Instead, the state sets the most important standards in China. The Standardization Law of the People's Republic of China, promulgated by the National People's Congress Standing Committee in 1988, specifies four tiers of standards in descending order of legal authority: national standards (国家标准 Guojia Biaozhun), sector standards (行业标准 Hangye Biaozhun), local standards (地方标准 Difang Biaozhun), and enterprise standards (企业标准 Qiye Biaozhun).[58] National standards apply nationwide and are made by a

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53 *Id.*

54 Sébastien Evrard & Zhang Yizhe, *Refusal to Deal in China: A Missed Opportunity?*, *in* CHINA'S ANTI-MONOPOLY LAW: THE FIRST FIVE YEARS, *supra* note 17, at 135, 139.

55 GLOBAL ANTITRUST AND COMPLIANCE HANDBOOK, *supra* note 38 (manuscript at ch. 43); Submission from U.S. Fed. Trade Comm'n & Antitrust Div., U.S. Dep't of Justice to Competition Comm., Org. for Econ. Co-operation and Dev. (Oct. 17, 2011), *available at* http://www.justice.gov/atr/public/international/278823.pdf.

56 GLOBAL ANTITRUST AND COMPLIANCE HANDBOOK, *supra* note 38 (manuscript at ch. 12).

57 There seems to be a fixation by Chinese authorities in their antitrust-IP regulations and academics with viewing IPRs as an essential facility and with at times conflating essential facilities and refusals to deal. For an English language work by a prominent antitrust-IP scholar in China, see Wang Xianlin, *The Application of the Anti-Monopoly Law in the Context of Intellectual Property Rights*, *in* CHINA'S ANTI-MONOPOLY LAW: THE FIRST FIVE YEARS, *supra* note 17, at 447. In the United States, the essential facilities doctrine has never been applied to IPRs, and it is more or less dormant doctrinally for all other applications under *Trinko*. *See* Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 410–11 (2004) (holding that Verizon's allegedly insufficient assistance in the provision of service to rivals is not a recognized antitrust claim, even considering the essential facilities doctrine). Refusals to deal are limited under *Aspen Skiing*. Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 586 (1985). *Trinko* suggests that *Aspen Skiing* is somewhat of an outlier. *Trinko*, 540 U.S. at 399 ("*Aspen* is at or near the outer boundary of § 2 liability.").

58 Zhonghua Renmin Gongheguo Biaozhunhua Fa (中华人民共和国标准化法) [The Standardization Law of the People's Republic of China] (promulgated by the Standing Comm. Nat'l People's Cong., Dec. 29, 1988, effective Apr. 1, 1989), art. 6, http://www.ciac.sh.cn/newsdata/news14876.htm.

state-run standard-setting agency within the State Council (China's cabinet).[59] Sector standards apply only in specific sectors and are made by the standard-setting agencies of the respective government ministries overseeing each sector.[60] Local standards are made by the standard-setting agencies of local governments and apply only within the jurisdiction of the local governments.[61] Enterprise standards are made by enterprises themselves and only govern the products of specific enterprises.[62] Certain national and sector standards, such as those concerning human health and safety and those required by law to have binding legal force, are mandatory.[63] Local standards concerning product safety and sanitary conditions are also mandatory within the jurisdiction of the local governments who set the standards.[64]

The most important standard-setting activities in China take place at the national and sector levels. At the national level, the key government agency charged with standard-setting is the Standardization Administration of China (SAC) under the General Administration of Quality Supervision, Inspection, & Quarantine (AQSIQ) of the State Council.[65] All national standards have to be registered and approved by the SAC.[66] The SAC is supported by two other governmental organizations: the China National Institute of Standardization (CNIS), a research institute charged with standardization-related research and drafting,[67] and the China Association for Standardization, a trade association engaged in standardization promotion and training.[68] In conjunction with sector ministries, the SAC oversees about 450 national technical committees and 600 subcommittees composed of approximately 40,000 experts from industry, academia, and government.[69]

At the sector level, a standardization department within each government ministry is responsible for making sector standards for the respective sector.[70] For sectors that are not overseen by a government ministry, standard-setting is handled by the Ministry of Industry and Information Technology (MIIT).[71] The sector minis-

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59 *Id.*
60 *Id.*
61 *Id.*
62 *Id.*
63 *Id.* art. 7.
64 The Standardization Law of the People's Republic of China, art. 7.
65 *See Brief Introduction of SAC*, STANDARDIZATION ADMIN. OF THE PEOPLE'S REPUBLIC OF CHINA (Nov. 23, 2010), http://www.sac.gov.cn/sac_en/introductionofSAC/201011/t20101123_4166.htm (introducing the main responsibilities of SAC).
66 The Standardization Law of the People's Republic of China, art. 6 (requiring all national standards be formulated by the department of standardization).
67 *See About CNIS*, CHINA NAT'L INST. OF STANDARDIZATION, http://en.cnis.gov.cn/bzygk/kyly (explaining that one of the roles of CNIS is to run the administrative functions of the SAC) (last visited Feb. 28, 2014).
68 CHINA ASS'N FOR STANDARDIZATION, http://www.china-cas.org (last visited Feb. 28, 2014).
69 Wang Ping, *On Standardization in China*, TALKSTANDARDS (Aug. 16, 2010), http://www.talkstandards.com/on-standardization-in-china.
70 *Id.*
71 *Id.*

tries also run various standardization research institutes whose responsibilities are to support sector standard-setting agencies through research and drafting.[72]

It is clear from this institutional design for standard-setting that the Chinese government wants to ensure that standard-setting decisions ultimately rest with the state. Although private interests could certainly influence the standard-setting processes in China through their representation on the various technical committees or sub-committees, their inputs would not be incorporated into a final standard unless they are adopted by the government standard-setting agencies. This institutional design creates additional opportunities for China to take into account industrial policy considerations in its standard-setting processes.

B. Intellectual Property Rights and Standard-Setting in China

Intellectual property has long been an integral component of China's development policy. China's National Science and Technology Plan, set out in China's Eleventh Five-Year Plan (2006–2010)[73] and the accompanying National Medium- and Long-Term Science and Technology Development Plan (2006–2020),[74] sets a goal of building an "innovation nation" by 2020.[75] To implement the National Science and Technology Plan, the State Council issued the National Intellectual Property Strategy in 2008[76] and the State Intellectual Property Office issued China's Patent Strategy in 2010.[77] These documents all call for China to reduce its dependence on foreign technologies and to increase the production of indigenous technologies.[78]

China's preoccupation with indigenous innovation stems from the stark reality that royalty fees paid by Chinese firms to foreign patent holders impose a high bur-

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72 *Id.*

73 Guomin Jingji he Shehui Fazhan Di Shiyi Ge Wu Nian Guihua Gangyao (国民经济和社会发展第十一个五年规划纲要) [Outline of the Eleventh Five-Year Plan for National Economic and Social Development] (issued by Nat'l Dev. & Reform Comm'n of China [NDRC], Mar. 16, 2006), http://news.xinhuanet.com/misc/2006-03/16/content_4309517.htm [hereinafter Eleventh Five-Year Plan].

74 Guojia Zhong Changqi Kexue he Jishu Fazhan Gangyao (2006–2020 Nian) (国家中长期科学和技术发展纲要[2006–2020年]) [Outline of the National Medium- and Long-Term Program for Science and Technology Development (2006–2020)] (issued by St. Council of China, Feb. 6, 2006), http://www.gov.cn/jrzg/2006-02/09/content_183787.htm.

75 Eleventh Five-Year Plan, *supra* note 73, tit. VII. *See generally* William J. Murphy & John L. Orcutt, *Using Valuation-Based Decision Making to Increase the Efficiency of China's Patent Subsidy Strategies*, 2013 CARDOZO L. REV. DE NOVO 116, 120 (2013) (discussing science and technology fueling China's economic growth).

76 *Outline of the National Intellectual Property Strategy*, GOV.CN (June 21, 2008), http://english.gov.cn/2008-06/21/content_1023471.htm.

77 Quanguo Zhuanli Shiye Fazhan Zhanlue (2011–2020 Nian) (全国专利事业发展战略[2011–2020年]) [National Patent Development Strategy (2011–2020)] (issued by St. Intell. Prop. Off., Nov. 18, 2010) (China), *translated at* http://graphics8.nytimes.com/packages/pdf/business/SIPONatPatentDevStrategy.pdf.

78 Murphy & Orcutt, *supra* note 73, at 120–21.

den on China's manufacturing sector.[79] For example, royalty fees paid by Chinese DVD-player makers to Phillips and other foreign patent holders amounted to twenty percent of the sale prices of the DVD-players.[80] As another example, foreign patents account for a significant portion of the TD-SCDMA technology developed as an indigenous alternative to foreign telecommunications technologies.[81]

Consistent with China's overall science and technology policy, encouraging indigenous innovation has become an overarching objective of standard-setting in China. The Eleventh Five-Year Plan requires that priority be given to indigenous technologies in the adoption of Chinese standards.[82] A draft report released by the SAC in 2004 warned of threats posed by foreign products to domestic products and vowed to increase the proportion of indigenous technologies in Chinese standards.[83] These broader political economy goals also have an impact on antitrust developments in China, as discussed in Part II above.

One issue that has proved particularly challenging for Chinese standard-setting agencies is the role of patents in standard-setting, which has been the subject of three draft regulations proposed by the SAC since 2004. The first draft regulation, released in 2004 for public comments,[84] took a rather hostile approach to patents in relation to national standards. Under this draft regulation, mandatory national standards should not include patented technologies, and voluntary national standards should include patented technologies only if such technologies are irreplaceable.[85] Under the draft, if a national standard does involve a patented technology, the holder of the patent is required to issue an irrevocable written declaration stating its willingness to license its patent either on a royalty-free basis or on a FRAND basis.[86] The draft specifies that a national standard will not be approved absent such declarations from patent holders.[87] The 2004 draft regulation did not specify what would constitute a FRAND rate. The 2004 draft regulation was not implemented

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79 This is one of the key drivers; the other relates to security or control (lack of trust of foreign technologies, etc.).

80 Greg S. Slater, *Compulsory Licensing Trends in the Technology Sector: China as a Case Study on Licensing Patents*, *in* COMPULSORY LICENSING AND OTHER IP CONTROLS 135, 139 (Am. Bar Ass'n Section of Intellectual Prop. Law ed., 2009).

81 John Whalley, Weimin Zhou & Xiaopeng An, *Chinese Experience with Global 3G Standard Setting* 29 n.36 (CESifo, Working Paper No. 2537, 2009), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1340383.

82 Eleventh Five-Year Plan, *supra* note 73, tit. VII, § 4.

83 Slater, *supra* note 80.

84 Guojia Biaozhun Sheji Zhuanli de Guiding (Zanxing) (Zhengqiu Yijian Gao) (国家标准涉及专利的规定[暂行] [征求意见稿]) [Provisions on Issues Related to Patents in National Standards (Interim) (Draft for Public Comments)] (Mar. 19, 2004), http://www.doc88.com/p-285364397736.html (China).

85 *Id.* art. 3.

86 *Id.* art. 11.

87 *Id.* art. 12.

because of lobbying efforts against it by multinational companies and U.S. government agencies.[88]

In 2009, the SAC issued a second draft regulation on patents in standard-setting.[89] Like the 2004 draft regulation, the 2009 draft regulation required patented technologies to be essential if they were to be included in national standards.[90] If a national standard did involve a patented technology, the holder of the patent was required to make an irrevocable written declaration stating one of the following: (1) it agreed to license its patent on a FRAND royalty-free basis, (2) it agreed to license its patent on a FRAND basis with the royalty fee being significantly lower than the normal amount, or (3) it did not agree to license its patent as provided under (1) or (2).[91] If the patent holder chose the third option in its written declaration, its patent would not be included in the standard.[92]

Under the 2009 draft regulation, patent holders who desired to have their patents included in a standard were forced to charge either no royalty fees or royalty fees that are significantly lower than normal. The 2009 draft regulation also contained special provisions on the inclusion of patented technologies in mandatory national standards. It stated that mandatory national standards shall "in principle" not include patented technologies,[93] leaving the door open to the inclusion of patented technologies in mandatory national standards under certain circumstances. When a mandatory national standard must include a patented technology, the 2009 draft regulation required the patent holder either to grant a royalty-free license or to negotiate with the SAC to reach a mutually acceptable solution.[94] If the patent holder and the SAC failed to reach a mutually acceptable solution, then the SAC would either not approve the national standard in question or impose a compulsory license.[95] The 2009 draft regulation was widely criticized as undervaluing intellectual property rights in standard-setting.[96]

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88 Slater, *supra* note 80, at 140.

89 Sheji Zhuanli de Guojia Biaozhun Zhi Xiuding Guanli Guiding (Zanxing) (Zhengqiu Yijian Gao) (涉及专利的国家标准制修订管理规定[暂行] [征求意见稿]) [Provisions on the Administration of Formulating and Revising National Standards Involving Patents (Interim) (Draft for Public Comments)] (Nov. 2, 2009), http://www.sac.gov.cn/upload/091104/0911040916193480.PDF (China).

90 *Id.* art. 3. "Essential" in the IP standards context means something different than what it means in the 2009 regulations.

91 *Id.* art. 9.

92 *Id.*

93 *Id.* art. 12.

94 *Id.* art. 13.

95 Provisions on the Administration of Formulating and Revising National Standards Involving Patents (Interim) (Draft for Public Comments), art. 13.

96 George T. Willingmyre, *Inside Views: Take Two—China's Proposed Regulations for Patent-Involving National Standards*, INTELL. PROP. WATCH (Dec. 21, 2009, 4:00 PM), http://www.ip-watch.org/2009/12/21/take-two-china%E2%80%99s-proposed-regulations-for-patent-involving-national-standards.

As an indication of the importance—and difficulties—of the subject, the SAC issued a third draft regulation on patents in standards in December 2012.[97] The 2012 draft regulation took a softened stance—in language, if not in substance—on the inclusion of patented technologies in national standards. Like the 2004 and 2009 draft regulations, the 2012 draft regulation requires patented technologies to be indispensable for them to be included in national standards.[98] If a national standard does involve a patented technology, the patent holder is required to issue an irrevocable written declaration stating one of the following: (1) it agrees to license its patent on a royalty-free basis, (2) it agrees to license its patent on a FRAND basis, or (3) it does not agree to license its patent as provided under (1) or (2).[99] If the patent holder chooses the third option in its written declaration, its patent will not be included in the standard.[100] Compared to the 2009 draft regulation, the 2012 draft regulation deleted the "significantly lower than normal" language from the second option, although the SAC could, in theory at least, still interpret FRAND to mean "significantly lower than normal." As for patents in mandatory national standards, the 2012 draft regulation preserved the requirement that mandatory national standards shall "in principle" not include patented technologies.[101] But when a mandatory national standard must include a patented technology, the patent holder is only required to negotiate with the SAC to reach a mutually acceptable solution as to the disposition of the patent.[102] Granting a royalty-free license is no longer explicitly listed as a possible course of action as it was under the 2009 draft regulation, although the patent holder is obviously still able to do so. If the patent holder and the SAC cannot reach a mutually acceptable solution, the SAC is required not to approve the national standard in question.[103] But under the 2012 draft regulation, the SAC no longer has the authority to impose a compulsory license as under the 2009 draft regulation.[104]

While it is not entirely clear what has motivated the shifts in language in the 2012 draft regulation, it does show increased flexibility on the part of the SAC. This flexibility may only be a gesture to Western critics or may involve a more fundamental shift in the thinking of the SAC. As more and more indigenous technolo-

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97 *See* Guojia Biaozhun Sheji Zhuanli de Guanli Guiding (Zanxing) (Zhengqiu Yijian Gao) (国家标准涉及专利的管理规定[暂行] [征求意见稿) [Provisions on the Administration of National Standards Involving Patents (Interim) (Draft for Public Comments)] (Dec. 19, 2012), http://www.doc88.com/p-3894787737080.html (China).

98 *Id.* art. I.4.

99 *Id.* art. III.1.

100 *Id.* art. III.2.

101 *Id.* art. IV.1.

102 *Id.* art. IV.2.

103 Provisions on the Administration of National Standards Involving Patents (Interim) (Draft for Public Comments), art. IV.2.

104 *Id.*

gies are being patented and replacing foreign technologies in Chinese standards,[105] the SAC at some point will have to think strategically about the negative consequences of a standard-setting regime that is overly hostile to patents. It remains to be seen however whether the SAC believes it has already reached that point. Put differently, China used to behave defensively about its IPRs. Increasingly, China has reason to behave offensively about IPRs and might want to push for stronger IPR enforcement.[106]

In addition to the proposed SAC regulations, the SAIC Draft IP Enforcement Guide released in August 2012 also contains several specific provisions on IPRs in standard-setting. Article 22 of the SAIC Draft IP Enforcement Guide states that unilaterally setting the terms and conditions of patent licenses during the standard-setting process is a legitimate way of exercising patent holders' IPRs and generally does not have the effect of excluding or impeding competition.[107] Article 22 also provides that patent holders may violate the AML if they (1) know or should have known that their patents may be included in a standard, (2) do not disclose their patent information as required by the rules of the standard-setting agency, (3) claim patent rights after they have been included in a standard, and (4) such claims have potentially adverse effects on competition and innovation in the relevant market.[108] Article 22 further provides that when a patented technology is included in a mandatory national standard, a ceiling should be set for the royalty fees, and the ceiling should not be significantly higher than the royalty fees prevailing prior to the inclusion of the patent in the standard.[109] Article 22 therefore sets an upper limit on what will be considered acceptable royalty fees for patents included in standards. Although not specifically using the term FRAND, Article 22 provides some insights into how China's antimonopoly regulators might approach FRAND licensing in standard-setting. Unfortunately, Article 22 provides guidance only in very narrow circumstances. It only concerns situations where directly comparable licensing transactions exist—situations where it is arguably straightforward to determine FRAND rates.

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[105] James McGregor, *China's Drive for 'Indigenous Innovation' A Web of Industrial Policies*, U.S. CHAMBER OF COM., https://www.uschamber.com/sites/default/files/legacy/reports/100728chinareport0.pdf (last visited Mar. 14, 2014).

[106] This point is evident from China's proposed fourth amendment to its patent law, in which China has increased the enforcement power of administrative agencies and the penalties for certain types of patent infringement. Aaron Wininger, *China's Proposed Amendment to the Patent Law: A Significant Increase to the Value of Patent Rights in China?*, PERKINS COIE (Sept. 4, 2012), http://www.perkinscoie.com/chinas-proposed-amendment-to-the-patent-law-a-significant-increase-to-the-value-of-patent-rights-in-china-09-04-2012.

[107] SAIC Draft IP Enforcement Guide, *supra* note 33, art. 22.

[108] *Id.*

[109] *Id.*

III. FRAND in Chinese Courts

A. Supreme People's Court on FRAND

Chinese courts are occasionally called on to resolve disputes involving the licensing of IPRs. In July 2008, the Supreme People's Court (SPC) issued a judicial reply[110] in response to inquiries from Liaoning High People's Court about how to deal with a patent infringement case involving a sector standard issued by the Ministry of Construction.[111] The SPC stated that it was addressing such cases because the government authorities responsible for standard-setting in China had not established rules on the public disclosure and use of patented technologies in standards.[112] The SPC then set out the general principles to be followed by Chinese courts in handling such cases. According to the SPC, if a patent holder has participated in the making of a national, sector, or local standard or has consented to including its patents in a national, sector, or local standard, the patent holder will be deemed to have consented to allow others to use the patents for purposes of implementing the standard, and those uses will not constitute patent infringement.[113] The patent holder may ask users to pay a royalty fee, but the amount of the fee should be significantly lower than the normal amount.[114]

The SPC's 2008 judicial reply has been followed by Chinese courts. In March 2011, for example, the Hebei High People's Court decided a patent infringement case involving a local standard.[115] The plaintiff in the case owned a patent in a construction method that was included in a construction standard adopted by the Bureau of Construction of Hebei Province.[116] The defendant used the plaintiff's patent without obtaining the plaintiff's consent and without paying the plaintiff a royalty fee.[117] The lower court held that the defendant infringed on the plaintiff's patent and ordered the defendant to compensate the plaintiff in the amount of RMB

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[110] A judicial reply is a reply issued by a higher court in response to inquiries from a lower court regarding the handling of specific legal issues. A judicial reply is generally binding on lower courts. This case was based on an IP claim rather than an antitrust claim.

[111] Zuigao Renmin Fayuan Guanyu Chaoyang Xingnuo Gongsi Anzhao Jianshebu Banfa de Hangye Biaozhun "Fuhe Zaiti Hang Kuo Zhuang Sheji Guicheng" Sheji Shigong er Shishi Biaozhun Zhong Zhuanli de Xingwei Shifou Goucheng Qinfan Zhuanliquan Wenti de Han (最高人民法院关于朝阳兴诺公司按照建设部颁发的行业标准《复合载体夯扩桩设计规程》设计、施工而实施标准中专利的行为是否构成侵犯专利权问题的函) [Supreme People's Court's Letter of Reply on Whether Chaoyang Xingnuo Co. Infringed on a Patent Included in a Ministry of Construction Standard When it Implemented the Patent as Required by the Standard] (Sup. People's Ct. Jul. 8, 2008) (China) (on file with authors).

[112] *Id.*

[113] *Id.*

[114] *Id.*

[115] Hengshui Ziyahe Jianzhu Gongcheng Youxian Gongsi yu Zhang Jingting Deng Qinfan Faming Zhuanli Quan Jiufen Shangsu An Minshi Panjue Shu (衡水子牙河建筑工程有限公司与张景廷等侵犯发明专利权纠纷上诉案民事判决书) [Civil Judgment on Appeal of Dispute Between Hengshui Ziyahe Construction Ltd. Co. and Zhang Jingting et al. Regarding Invention Patent Infringement] (Hebei High People's Ct. Mar. 21, 2011) (China) (on file with authors) [hereinafter Civil Judgment].

[116] *Id.*

[117] *Id.*

800,000.[118] On appeal, the Hebei High People's Court reversed the lower court on the issue of patent infringement.[119] Citing the SPC's 2008 judicial reply, the Hebei High People's Court held that since the plaintiff participated in the making of the construction standard in question, he should be deemed to have consented to the use of his patent by others in return for a royalty fee significantly lower than the normal amount.[120] The Hebei High People's Court reduced the amount of compensation due to the plaintiff from RMB 800,000 to RMB 100,000.[121]

Apparently, the SPC's approach to FRAND licensing is consistent with the approach taken by the SAC in its 2009 draft regulation on patents in standards. Given that the SAC's 2012 draft regulation has eliminated the "significantly lower than normal" phrase, it is not entirely clear whether the SPC would still take the same approach if it were asked to address this issue anew today.

B. Huawei v. InterDigital

A number of courts have had to decide FRAND issues in recent years in the United States.[122] In the recent *Microsoft v. Motorola* decision, a U.S. court for the first time defined what FRAND means in a standard-setting context.[123] The *Microsoft v. Motorola* decision will be briefly discussed in order to provide context for *Huawei v. InterDigital*, which in some respects parallels analyses in *Microsoft v. Motorola*.

In a 207-page decision, the court addressed Microsoft's claim that Motorola's licensing terms violated its FRAND commitment.[124] There are many nuances to a case of this complexity and length. The case highlights how difficult FRAND calculations can be. Judge Robart analyzed the fifteen *Georgia-Pacific*[125] factors for patent infringement and tweaked the framework to compare patents to the industry standard and to emphasize the FRAND obligation.[126] In undertaking his analysis, Judge Robart scrutinized each patent, standard, and product involved in great detail. He ultimately concluded that the Motorola patents were of exceedingly little importance to the relevant standards or Microsoft products at issue.[127] Based on this analysis, Judge Robart determined the appropriate FRAND royalty range and rate for each patent. The court determined that Motorola had asked for a rate that was

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[118] *Id.*
[119] *Id.*
[120] *Id.*
[121] Civil Judgment, *supra* note 115.
[122] *See* Jorge L. Contreras, *Fixing FRAND: A Pseudo-Pool Approach to Standards-Based Patent Licensing*, 79 ANTITRUST L.J. 47, 54 (2013) (providing a table of U.S. FRAND cases).
[123] Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 U.S. Dist. LEXIS 60233 (W.D. Wash. Apr. 25, 2013).
[124] *Id.*
[125] Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116 (S.D.N.Y. 1970).
[126] *Microsoft Corp.*, 2013 U.S. Dist. LEXIS 60233, at *16.
[127] *Id.* at *29, *31–32, *36, *39, *42, *46–49, *64.

too high.[128] In the case of the 802.11 patent, the difference was from an offer by Motorola of $6.00 to $8.00 to an awarded royalty of only 3.471 cents as the FRAND rate for that patent.[129]

This detailed analysis in the United States differs from the approach taken in China. In February 2013, the Shenzhen Intermediate People's Court decided two companion cases in a dispute between Huawei and InterDigital involving FRAND-related issues.[130] Below is an analysis of the two decisions, with an important caveat that since the decisions are the only FRAND decisions in China, it remains to be seen whether the court's reasoning in the two cases is specific to the facts of those cases or will be applied more broadly.

In the two companion proceedings, Huawei Technologies Co., Ltd. (a Chinese company)[131] sued InterDigital Inc. (a U.S. company) for violating its FRAND obligations and for violating China's AML.[132] Unlike the lengthy U.S. decision in *Microsoft v. Motorola*, which is publicly available, the Chinese decisions have never been published.[133] The only public discussion of the decision comes from the SEC filings made by InterDigital[134] and two articles on the cases published by the three presiding judges.[135]

The lack of transparency in terms of the non-publication of the *Huawei v. InterDigital* decisions plays to concerns that Western firms have about the implemen-

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[128] *See id.* at *100 (setting the upper bound of a FRAND rate far below the amount proposed by Motorola).

[129] *Id.* at *99–100.

[130] InterDigital, Inc., Annual Report (Form 10-K), at 22–23 (Feb. 26, 2013).

[131] Note that unlike many large Chinese firms, Huawei is not a state-owned enterprise. For a discussion of Chinese SOE corporate governance, see Li-Wen Lin & Curtis J. Milhaupt, *We Are the (National) Champions: Understanding the Mechanisms of State Capitalism in China*, 65 STAN. L. REV. 697 (2013). For a discussion of antitrust issues involving SOEs, see D. Daniel Sokol, *Competition Policy and Comparative Corporate Governance of State-Owned Enterprises*, 2009 BYU L. Rev. 1713 (2009); David E.M. Sappington & J. Gregory Sidak, *Competition Law for State-Owned Enterprises*, 71 ANTITRUST L.J. 479 (2004).

[132] Both cases were subsequently affirmed by the Guangdong High People's Court in October 2013. InterDigital, Inc., Annual Report (Form 10-K), at 26 (Feb. 24, 2014).

[133] At the parties' request, the trials in the two cases were closed to the public on business secret grounds. However, even for closed-door hearings, a redacted version of the decision should be made public.

[134] InterDigital, Inc., Annual Report (Form 10-K) (Feb. 26, 2013).

[135] Ye Ruosi, Zhu Jianjun & Chen Wenqun (叶若思, 祝建军, 陈文全), *Biaozhun Biyao Zhuanli Quan Ren Lanyong Shichang Zhipei Diwei Gouchen Longduan dde Rendin* (标准必要专利权人滥用市场支配地位构成垄断的认定) [*Determining Whether Standard-SEP Holder Abused Its Dominant Position*], DIANZI ZHISHI CHANQUAN (《电子知识产权》) [J. ELECS. INTELL. PROP. RTS.] 46–52 (Mar. 2013) (China) [hereinafter *Dominant Position*] (on file with authors); Ye Ruosi, Zhu Jianjun & Chen Wenqun (叶若思, 祝建军, 陈文全), *Biaozhun Biyao Zhuanli Shiyong Fei Jiufen Zhong FRAND Guize de Sifa Shiyong* (标准必要专利[使用费]纠纷中FRAND规则的司法适用) [*Judicial Application of FRAND Rules in Disputes Involving Royalties for Standard Essential Patents (SEPs)*], DIANZI ZHISHI CHANQUAN (《电子知识产权》) [J. ELECS. INTELL. PROP. RTS.] 54–61 (Apr. 2013) (China) [hereinafter *Judicial Application of FRAND Rules*] (on file with authors).

tation of the AML and the possibility that its goals may be based on industrial policy. The lack of transparency is particularly important because it impacts the legitimacy of the Chinese antitrust system both domestically and internationally. In the absence of a publicly available decision explaining the basis for the court's conclusions, it is difficult to understand how the court has interpreted and applied FRAND.

Included below is the entire discussion of the InterDigital cases mentioned in InterDigital's 2013 annual report to show how little is publicly known and how much firms doing business in China need to extrapolate FRAND policies in China from this limited information, unless they possess a copy of the decision. Also note that as this is an InterDigital filing, so there may be a question of whether the framing of the facts by them is entirely neutral:

> On February 4, 2013, the Shenzhen Intermediate People's Court issued rulings in the two proceedings. With respect to the first complaint, the court decided that InterDigital had violated the Chinese Anti-Monopoly Law by (i) making proposals for royalties from Huawei that the court believed were excessive, (ii) tying the licensing of essential patents to the licensing of non-essential patents, (iii) requesting as part of its licensing proposals that Huawei provide a grant-back of certain patent rights to InterDigital and (iv) commencing a USITC action against Huawei while still in discussions with Huawei for a license. Based on these findings, the court ordered InterDigital to cease the alleged excessive pricing and alleged improper bundling of InterDigital's Chinese essential and non-essential patents, and to pay Huawei approximately 3.2 million USD in damages related to attorneys fees and other charges, without disclosing a factual basis for its determination of damages. The court dismissed Huawei's remaining allegations, including Huawei's claim that InterDigital improperly sought a worldwide license and improperly sought to bundle the licensing of essential patents on multiple generations of technologies. With respect to the second complaint, the court determined that, despite the fact that the FRAND requirement originates from ETSI's Intellectual Property Rights policy, which refers to French law, InterDigital's license offers to Huawei should be evaluated under Chinese law. Under Chinese law, the court concluded that the offers did not comply with FRAND. The court further ruled that the royalties to be paid by Huawei for InterDigital's 2G, 3G and 4G essential Chinese patents under Chinese law should not exceed 0.019% of the actual sales price of each Huawei product, without explanation as to how it arrived at this calculation. InterDigital intends to appeal both decisions.[136]

One item that stands out in the SEC filing is the actual amount of the FRAND rate. According to the SEC filing, the court ruled, without explanation, that the royalties to be paid by Huawei for InterDigital's SEPs should not exceed 0.019% of the actual sales price of each Huawei product.[137] That rate, according to one commentator, is "orders of magnitude lower than the single-digit percentage demands" one commonly finds for large portfolio SEPs in the telecommunications industry.[138] But given how little information is publicly available, it is difficult for any reader of the case to really know if that is true.

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[136] InterDigital, Inc., Annual Report (Form 10-K), at 23 (Feb. 26, 2013).

[137] *Id.*

[138] Leon B. Greenfield et al., *SEP Enforcement Disputes Beyond the Water's Edge: A Survey of Recent Non-U.S. Decisions*, ANTITRUST, Summer 2013, at 50, 53.

From the two articles authored by the judges who presided over *Huawei v. InterDigital*, certain inklings about the cases can be drawn out.[139] According to the judges, InterDigital offered licensing terms to Huawei that were much higher than those offered to Apple or Samsung, thereby committing excessive and discriminatory pricing and violating its FRAND obligations.[140] Furthermore, the judges wrote that InterDigital committed a tying abuse by tying standard-essential patents with non-standard-essential patents.[141]

In their articles, the judges also defended their holding that the disputes between Huawei and InterDigital should be governed by Chinese law, not by French law.[142] The judges wrote that the standards in dispute were not standards adopted by the European Telecommunications Standards Institute (ETSI), but were Chinese standards adopted under Chinese law.[143] Furthermore, the judges asserted that the place of domicile and the main business territory of the plaintiff, the place of implementation for the SEPs, and the place of licensing negotiations were all in China.[144] The judges concluded that Chinese law should govern the disputes in accordance with the closest-nexus principle.[145]

To determine the reasonableness of the licensing terms offered by InterDigital to Huawei, the court examined publicly available information, including information on InterDigital's licensing revenues, to estimate the fees that InterDigital charged or proposed to charge Apple and Samsung.[146] The court needed to reverse engineer these numbers because InterDigital refused to disclose them, fearing that they would be provided to non-parties to the case.[147] The court then compared those estimates to the fees that InterDigital had demanded from Huawei and found the latter to be much higher.[148]

Some factors mentioned in the judges' articles look different from factors that would be relevant in a U.S. proceeding. The judges in their articles mentioned job-related factors.[149] Huawei employs 51,000 R&D staff with over 49,000 patent applications and 17,765 patents granted worldwide.[150] In contrast, InterDigital has 260 R&D personnel with only 19,500 patents and patent applications.[151] The judges also noted that InterDigital does not engage in any substantive production activi-

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[139] This article focuses on the FRAND specific issues. We note, but do not discuss, a rather crude market definition in the decision and aspects of the decision that raise extraterritorial issues.
[140] *Dominant Position*, *supra* note 135, at 51.
[141] *Id.* at 52.
[142] *Judicial Application of FRAND Rules*, *supra* note 135, at 60.
[143] *Id.*
[144] *Id.* at 57.
[145] *Id.*
[146] *Id.* at 61.
[147] *Id.*
[148] *Judicial Application of FRAND Rules*, *supra* note 135, at 57.
[149] *Id.* at 56.
[150] *Id.*
[151] *Id.*

ties.[152] Indeed, when discussing the reasonableness of InterDigital's offers and the abuse of dominance by InterDigital, the judges rely heavily on the fact that InterDigital does not have a production business.[153] The judges stated that the consideration of those factors was intended to measure the rate of return that would be commensurate with InterDigital's contributions to telecommunications technologies.[154] Apparently the judges assumed that the number of research personnel and the number of patents and patent applications were a good indicator of the value of the patents—an assumption that is obviously false.

Huawei v. InterDigital suggest two possible interpretations. The first is that InterDigital violated its FRAND commitment to Huawei and also committed other antitrust violations such as tying SEPs to other non-SEPs. The main indicia for this interpretation would be the alleged difference between the royalty rates offered to Huawei and the royalty rates offered to Apple and Samsung. Since the rates offered to Huawei were significantly higher than those offered to Apple and Samsung, InterDigital's action was discriminatory and therefore excessive, according to this interpretation. This interpretation appears to be strongly supported if the facts are true as represented. This interpretation is undermined, however, by the fact that the decisions did not disclose how the specific FRAND rate (0.019%) was calculated. Moreover, not discussed in the publicly available documents are a number of procedural problems that occurred in the case (e.g., non-Chinese lawyers were not allowed to attend hearings, there was a lack of access to information, and InterDigital could not provide evidence containing confidential business information because it did not have assurance that the information would not be disclosed to its Chinese customers and competitors).

An alternative interpretation of the decisions is that they played to the industrial policy concern of low royalty rates for the purpose of improving Huawei's position as a telecommunications equipment manufacturer with lower prices for a needed input. As noted earlier, the reasoning behind setting the FRAND rate at that specific amount was not spelled out in the decisions. Given the influence of the government over judges in China, the decisions raise the possibility that in China, ultimately it is the Chinese government that determines FRAND rates (rather than judges). Further adding to such concerns is the revelation that, subsequent to the cases, NDRC initiated an investigation into possible AML violations by InterDigital and allegedly stated that it could not guarantee the safety of executives InterDigital planned to send to China to meet with the agency.[155] From this perspective, Huawei's case may have been stronger had the litigation occurred in the United States rather than China. The problem with the lack of transparency in China's ju-

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[152] *Id.*

[153] *Id.*

[154] *Judicial Application of FRAND Rules*, *supra* note 135, at 61.

[155] *InterDigital Execs Fear Arrest, Won't Meet China Antitrust Agency*, REUTERS, Dec. 16, 2013, *available at* http://www.reuters.com/article/2013/12/16/interdigital-china-idUSL3N0JV10020131216.

dicial systems is that one cannot easily distinguish between these two interpretations, although the weight of evidence does favor the latter.

The *InterDigital* cases are significant. The perhaps terrifying effect of the cases on global companies that have been involved in SEP wars elsewhere is that the SEP war has opened a new front—China. This new battleground is different from FRAND wars in the United States and Europe because, in China, there has been less rigorous IPR enforcement, there is a concern with excessive prices charged by Western patent-holders, and there is a government sponsored indigenous innovation policy. The broader implications for Chinese competition law in the context of FRAND remain unclear, largely because of selective enforcement of the AML (often against Western firms) and due process concerns that remain a significant problem relative to the West. Because of this backdrop, even if a case were correctly decided, many might frame the decision in the context of industrial policy given their prior beliefs about the Chinese system.

IV. Conclusion

The Chinese approach to FRAND may have profound global implications for antitrust FRAND policy and the potential strategic use of antitrust globally.[156] But the Chinese FRAND policy is clouded with significant uncertainty, due in part to China's institutional contexts. It is possible that Chinese FRAND policy is merely at a nascent stage of development in which institutional limitations lead to outcomes that can be explained on non-industrial policy grounds. Yet given China's institutional contexts, one cannot be certain that industrial policy is not a factor.

In practice, patent implementers may have much more leverage in China than in Western antitrust regimes because of government pressures. These pressures have become quite significant in some areas, such as merger remedies by MOFCOM and pricing enforcement by NDRC, where the pressures are not based on competition concerns.[157] FRAND may become, in this Chinese context, a possible tool of rate regulation.

To the extent that industrial policy does guide FRAND policy in China, it presents negative consequences for innovation in China. Insufficient incentives for

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[156] D. Daniel Sokol, *The Strategic Use of Public and Private Litigation in Antitrust as Business Strategy*, 85 S. CAL. L. REV. 689, 690 (2012).

[157] D. Daniel Sokol, Christine A. Varney & Dai Jianmin (戴建民), *Weihe Fan Longduan Fa Faner Dailai Kunrao?* (为何《反垄断法》反而带来困扰?) [*Why Does the Anti-Monopoly Law Bring Worries?*], FORBES CHINA, Aug. 14, 2013, *available at* http://www.forbeschina.com/review/201308/0027701.shtml. The NDRC can bring excessive pricing cases. HOGAN LOVELLS, NDRC'S ANTITRUST CRACKDOWN CONTINUES AND ITS SCOPE BROADENS (2013), *available at* http://www.hoganlovells.com/files/Publication/dfa1516e-6775-4258-9746-16bbe9a6ff4c/Presentation/PublicationAttachment/a2ca0d22-74bd-4192-a6dc-0a713aaa773f/ACER%20Alert_NDRCs%20Antitrust%20Crackdown%20Continues%20and%20its%20Scope%20Broadens_Sep%202013.pdf. The recent *River Sand* case is the first case to rely upon the AML statutory language dealing with excessive pricing. *Id.*

SEP holders may lead to a problem of "reverse-patent hold-up"[158] that would chill investment standards. Multinational firms will be less willing to invest in China if they believe that the Chinese antitrust-IP system is rigged against them. More importantly, as China moves from implementer (based on lowest cost) to innovator (which commands a cost premium), efforts to impose unreasonable restrictions that lack genuine antitrust basis will impede Chinese innovation and may cause China to fall into a middle-income trap.[159] For these reasons, a FRAND policy focused on short-term industrial policy needs would be shortsighted.

[158] Elyse Dorsey & Matthew R. McGuire, *How the Google Consent Order Alters the Process and Outcomes of FRAND Bargaining*, 20 GEO. MASON L. REV. 979, 1000–01 (2013).

[159] *See* Pierre-Richard Agénor & Otaviano Canuto, *Middle-Income Growth Traps* (World Bank, Policy Research Working Paper No. 6210, 2012), *available at* http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-6210 (giving a general overview of middle-income growth traps).

Problems in Sharing the Surplus

Roger D. Blair and Thomas Knight*

I. Introduction

Dennis Carlton and Allan Shampine have addressed opportunistic and strategic behavior by standard-essential patent owners.[1] After a standard has been specified, and sunk investments have been made by those who would implement the standard, the holder of a standard-essential patent can demand more for the patent license than it could have demanded *ex ante*.[2] This sort of *ex post* opportunism can lead to economically inefficient outcomes.[3] The solution is to limit such patent holders to "fair, reasonable, and non-discriminatory" (FRAND) patent license fees.[4] Carlton and Shampine have advanced our understanding of precisely what this means.

License fees are negotiated with individual downstream producers, typically after the standard has been adopted. As a consequence, downstream producers may

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1 Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531 (2013).

2 *Id.* at 534.

3 *Id.* at 535.

4 On the implications of FRAND see Rebecca Haw Allensworth, *Casting a FRAND Shadow: The Importance of Legally Defining "Fair and Reasonable" and How* Microsoft v. Motorola *Missed the Mark*, 22 Tex. INTELL. PROP. L.J. (forthcoming 2014); Thomas F. Cotter, *The Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Keith N. Hylton, *A Unified Framework for Competition Policy and Innovation Policy*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); William H. Page, *Judging Monopolistic Pricing: F/RAND and Antitrust Injury*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); D. Daniel Sokol & Wentong Zheng, *FRAND in China*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014); Christopher S. Yoo, *Standard-Setting, FRAND, and Opportunism*, 22 TEX. INTELL. PROP. L.J. (forthcoming 2014).

become locked into using a particular standard before royalties are negotiated.[5] The *ex post* negotiation of royalties gives the owners of standard-essential patents the ability to demand larger royalties than they could have *ex ante*.[6] Without standard-specific investments, patent holders are only able to demand compensation equal to the *ex ante* marginal value added by their patented technology.[7] Otherwise, final producers would simply adopt an available alternate technology, and the original patent holder would receive nothing. The goal of FRAND royalty rates is to restore this *ex ante* solution.

Imposing FRAND commitments is intended to reduce the likelihood that the owner of a standard-essential patent can hold up a licensee by demanding "excessive" compensation for the intellectual property after standard-specific investments have been made by a potential licensee.[8] When a standard is being negotiated by a Standard-Setting Organization (SSO), owners of standard-essential patents must agree to license their intellectual property under FRAND terms.[9] If they will not, the SSO would consider tweaking the standard to include an alternative technology.[10] This process is supposed to limit the market power conferred upon the owners of standard-essential patents and reduce their ability to charge supra-competitive royalty rates after their intellectual property becomes required by industry producers.

Carlton and Shampine point out that confusion exists around determining what exactly constitutes a FRAND royalty rate, and they advance our understanding of how to apply economic reasoning to solving some of those issues. Most of the confusion centers around the definitions and feasibility of the terms "reasonable" and "non-discriminatory." A reasonable rate is one that would arise in a competitive market for the technology in question, limiting the patentee's *ex post* market power.[11] A non-discriminatory rate is one that does not distinguish between two similarly situated firms.[12] That is, when the technology in question similarly reduces two firms' costs—or alternatively, enhances their products' respective market values—the non-discriminatory principle would entail each firm paying the same royalty rate.[13] This article focuses on the reasonableness principle and the difficulty in identifying and implementing a reasonable royalty rate.

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5 Carlton & Shampine, *supra* note 1, at 535.

6 *Id.*

7 *Id.*

8 *Id.* at 537 ("By exploiting [the *ex post* bargaining position] or enhanced market power to raise royalty rates, the patent holder can hold up the prospective patent licensees and extract excessive royalties.").

9 *Id.* at 544–45.

10 *Id.*

11 Carlton & Shampine, *supra* note 1, at 536.

12 *Id.* at 541.

13 *Id.*

Instead of focusing on *ex post* opportunism, this article addresses *ex ante* bargaining problems. Economic analysis can characterize the incentives of different parties in a unique bargaining situation, but it often does not have the ability to predict a unique outcome. In many cases, economic analysis can identify particular bargaining outcomes that are unlikely, but it cannot select one of the remaining possible allocations as more likely than the others. In the context of FRAND royalty rates, failing to identify a unique bargaining solution implies that selecting one must be at least somewhat arbitrary. An arbitrarily selected rate cannot be considered reasonable.

The remainder of this article is organized as follows. Section II examines the difficulty that economic analysis has in predicting a unique bargaining solution and presents a number of different market arrangements that affect that prediction. Section III briefly explores the possible resort to eminent domain and compulsory licensing. As will be shown, neither of these approaches solves the problem. Section IV closes with concluding remarks.

II. Dividing the Surplus

While commitments to charge FRAND royalties deal with *ex post* strategic behavior designed to garner larger shares of the surplus created by an industry standard, there are *ex ante* bargaining problems that may undermine the creation of the surplus that an agreement would permit. The goal of adopting FRAND principles cannot simply be to restore a desired *ex ante* allocation because there may not be a unique *ex ante* allocation to restore. Some of the economic insights related to sequential bargaining, the time cost of negotiations, and the role of substitutable technologies are presented below. In each of these cases, basic economic intuition fails to select one particular rate—the reasonable rate.

Final producers and patentees must negotiate licensing fees, effectively bargaining over an amount of potential profits. If an agreement is reached, the surplus is realized, and it is distributed according to the agreement. If an agreement is not reached, the surplus is not realized, and no one receives any revenue (at least until the next time period). The following section identifies potential outcomes of the bargaining process and considers issues that may affect the distribution of any resulting surplus. It focuses most closely on the difficulties in predicting a particular division of the resulting surplus.

Economic analysis offers insight into what the upper and lower bounds of a patent license fee may be, but it often cannot predict a particular license fee within that set of possibilities. The inability to predict a single solution arises from the joint creation of surplus by a downstream producer and the owners of intellectual property employed by the producer as well as the multitude of potential bargaining structures.

When a downstream producer utilizes patented technology, it earns a return above what it would earn without utilizing that technology. Otherwise, the down-

stream producer would not be willing to pay for the technology. These increased profits must be split between the producer and the owner(s) of the patented technology. There is no universal rule regarding how these additional profits are to be distributed between the producer and the patentee(s). Any prediction must consider the unique features of a particular licensing arrangement and the ensuing bargaining process, including the number of protected technologies and the availability of alternatives to each.

The simplest illustration of this problem involves bargaining between a downstream monopolist producer and an owner of intellectual property that is essential for producing a final good, each with no outside option.[14] The downstream producer cannot operate without the patentee's protected technology, and the patentee cannot earn a return on its intellectual property without licensing it to the downstream producer. Suppose that the product will yield $100 of profit, and the patentee offers to license its technology for $90. The downstream producer would accept the offer because the offer provides it with $10 of additional profit. Suppose, however, that the downstream producer had offered the patentee $10 for its intellectual property. Again, the offer would be accepted because that offer provides the patentee $10 of additional surplus.

This simple bargaining scenario is referred to as an Ultimatum Game, and it reveals the difficulty of identifying who is entitled to profits generated by the use of a patented technology.[15] The standard Ultimatum Game involves two economic agents—"players"—that are trying to divide a fixed sum of money. The first player proposes a division of the money. Observing this proposal, the second player either accepts the division or rejects it. Rejecting the division leads to neither player receiving any payoff. In this setting, it is predicted that the first player will offer a highly inequitable division of the money because he or she knows that the second player will accept anything that offers even a very small amount of money.

The Ultimatum Game setting fits the simple bilateral monopoly example quite well, but it omits one critical issue of practical import: who is the first player? Despite the intuitive prediction offered by the Ultimatum Game, it says nothing regarding which player makes the initial offer and which player is stuck in the unfortunate position of simply accepting or rejecting an offer. In the bilateral monopoly case, both the upstream patentee receiving most of the surplus or the downstream monopolist receiving most of the surplus constitute reasonable divisions. Selecting between these possibilities requires precise knowledge regarding the structure of bar-

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[14] This market arrangement is referred to as a bilateral monopoly. For the foundational contribution, see A. L. Bowley, *Bilateral Monopoly*, 38 ECON. J. 651 (1928). *See also* Roger D. Blair, David L. Kaserman & Richard E. Romano, *A Pedagogical Treatment of Bilateral Monopoly*, 55 S. ECON. J. 831 (1989).

[15] *See generally* John Gale, Kenneth G. Binmore & Larry Samuelson, *Learning To Be Imperfect: The Ultimatum Game*, 8 GAMES & ECON. BEHAV. 56 (1995).

gaining. This feature of reality renders the Ultimatum Game framework incapable of predicting a unique bargaining allocation.

Without a clear understanding of the unique features of a particular bargaining arrangement between downstream producers and patentees, economic analysis fails to predict a unique licensing royalty that should arise. This point is made clear with the simple example of a single downstream producer and a single patentee, each without an outside option. This article explores how this problem evolves as the number of patentees increases, but again, economic analysis will fail to identify a single reasonable royalty rate.

A. Multiple Patented Technologies and Sequential Bargaining

Innovative products often utilize many patented technologies. These technologies may or may not be held by the downstream producers, or even by a single patentee. Some products require hundreds, or even thousands, of patented components. Steve Jobs claimed that the Apple iPhone, upon its initial unveiling, incorporated more than 200 patented innovations,[16] while the Toyota Prius is protected by more than 2,000 patents.[17] Final producers typically do not own the rights to each of these patented technologies. Rather, they rely on licensing agreements with numerous patentees to produce their final products. This creates a multi-party bargaining situation that is, in some ways, more complicated than the simple case illustrated above.

The simple case of a monopolist downstream producer and a single patentee illustrates the difficulty of predicting how surplus might be divided between final producers and the owners of intellectual property. The situation becomes even murkier with the introduction of two or more blocking patents. Suppose that producing a hammer required the use of patented handles and patented heads. If intellectual property rights protect both the handles and heads, along with the production of the hammer itself, each bargaining entity can claim that its technology is worth the entire surplus created by the production of hammers. Without any one of the three protected technologies, the hammer cannot be produced, and the associated surplus is not realized. The parties must identify an acceptable allocation of the surplus, or everyone is made worse off.

When the Ultimatum Game introduced above is expanded to include three players, it provides similar predictions to the two-player version. Additionally, it leaves us with little insight regarding how surplus might actually be divided. The three-player game is characterized as follows:

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[16] Ryan Block, *Live from Macworld 2007: Steve Jobs Keynote*, ENGADGET (Jan. 9, 2007), http://www.engadget.com/2007/01/09/live-from-macworld-2007-steve-jobs-keynote/.

[17] John Murphy, *Toyota Builds Thicket of Patents Around Hybrid To Block Competitors*, WALL ST. J., http://online.wsj.com/news/articles/SB124640553503576637 (last updated July 1, 2009, 11:59 PM).

First Move:	*The first player proposes a division of a fixed sum of money.*
Second Move:	*The second player chooses to accept or reject the first player's proposed division. If the second player accepts, that player proposes a division of the remaining surplus—the portion not claimed by the first player—to the third player. If the second player rejects, the game is over, and the fixed sum of money disappears.*
Third Move:	*The third player chooses to accept or reject the second player's proposed division. If the third player accepts, the fixed sum of money is distributed according to the two previous proposals. If the third player rejects, the game is over, and the fixed sum of money disappears.*

Consistent with game theory analysis of sequential move games, the solution to this bargaining problem is analyzed by solving it backwards.[18] This solution approach is preferred because, as the bargaining game progresses, each player can anticipate subsequent players' responses.

At the final point in the bargaining game, when the third player chooses to accept or reject a proposal by the second player, the third player will choose to accept any proposed division that offers that third player a positive payoff. Otherwise, that player receives no payoff. Similarly, when the second player chooses whether to accept or reject a proposal by the first player, the second player will choose to accept any proposed division that offers the second player a positive payoff. Moreover, anticipating the third mover's response, if the second player accepts the first player's proposed division, that second player will offer a very small portion of its allocation to the third player. This anticipated behavior leads the first player to make an initial proposal in which it receives most of the surplus. Such a proposal will be accepted by both bargaining partners subsequently. As in the two-player Ultimatum Game, the first player is able to extract almost the entire surplus. In the patent licensing arena, this result implies that the first party to make an offer receives most of the profits associated with the patent-protected final product, but it also implies that the final product is produced. Hold-up problems are avoided. This approach disregards the role of counteroffers and the more dynamic process that bargaining actually may be.[19]

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[18] This is also known as backward induction. *Backward Induction*, ECONPORT, http://www.econport.org/econport/request?page=man_gametheory_backinduct (last visited Aug. 31, 2014).

[19] This setting does not solve the question of which player is the first player. Game theory still fails to predict which bargaining partner is able to extract most of the surplus.

Practical bargaining situations involve counteroffers. Continuing with the hammer example, the owner of the patent on heads might demand $90 of the surplus, leaving the other $10 to be divided by the owner of the handle patent and the downstream producer. In a simple accept-reject Ultimatum Game, this offer would be accepted. The product would be produced, and there would be no incentive for the owner of the handle patent or the downstream producer to engage in hold-up. Unfortunately, this setting is highly unrealistic. In reality, the owner of the handle patent could make a counteroffer, demanding $90 of the surplus for itself. Until no counteroffers are possible, this process could continue indefinitely. The initial player loses any bargaining power it had enjoyed in the Ultimatum Game that did not allow counteroffers.

We examine the role of counteroffers by extending the Ultimatum Game to include counteroffers and demonstrate that it provides a new prediction regarding who secures the majority of the surplus. The three-player game with counteroffers is characterized as follows:

First Move:	*The first player proposes a division of a fixed sum of money.*
Second Move:	*The second player chooses to accept the first player's proposed division or to make a counteroffer. If the second player accepts, that player proposes a division of the remaining surplus—the portion not claimed by the first player—to the third player. If the second player makes a counteroffer, the game begins anew.*
Third Move:	*The third player chooses to accept the second player's proposed division or make a counteroffer (assuming the second player has accepted the first player's offer). If the third player accepts, the fixed sum of money is distributed according to the two previous proposals. If the third player makes a counteroffer, the game begins anew.*

The introduction of counteroffers complicates game theory analysis by allowing the game to start anew whenever one of the bargaining parties is not satisfied with the offer it receives. Solving the game backwards is no longer possible because there is no longer a clear final player. Any player can avoid being the final player by simply making a counteroffer. Game theory is no longer capable of making a prediction.

Allowing for counteroffers removes the ability of any bargaining party to place others in a take-it-or-leave-it position. As a consequence, any party can engage in hold-up. Returning to the hammer example—with both patented handles and

heads—each of the three parties might believe that they deserve the entire surplus. The owner of the patent on hammer heads could legitimately argue that the other two patented technologies are valueless without a license to use the head technology. The owner of the patent on hammer handles, as well as the downstream producer, could make similar claims. In the presence of counteroffers, each bargaining party could demand the entire surplus, leading to the surplus associated with production never being realized. The hold-up problem remains.

In each of the examples above, economic analysis and game theory analysis fail to predict a particular division of the surplus, but a number of interesting issues arise. First, when bargaining is sequential and counteroffers are not feasible, the first party to make an offer can extract the majority of the surplus. In this particular setting, there is no hold-up problem, and the final product is produced. There is, however, the problem of predicting the identity of the first mover. Essentially, the game theory analysis predicts that *someone* will be able to extract the entire surplus by moving first. Second, when counteroffers are possible, game theory analysis offers even less predictive capability. It is unable to predict a particular division of the surplus, and even more critically, it is unable to predict that an agreement will even be made. In the presence of counteroffers, it is possible that hold-up behavior could result in the surplus never being realized.

We have shown that the reasonable principle fails to select a particular allocation of surplus. This point is most evident when there exists one or more blocking patents. All owners of blocking technologies, as well as downstream monopolists, can reasonably claim that they are entitled to the entire surplus. These claims would be reasonable, but they would cause the parties to fail to reach an agreement. Additionally, economic intuition fails to predict a particular allocation under a structured bargaining regime. It is likely that one party can obtain a favorable distribution by making the final offer. However, identifying that party is not possible.

Models of sequential bargaining are useful when the sequence of offers is fixed and known, but patent royalty rate negotiations are not so rigidly structured. In fact, few business negotiations are. Without assuming an unrealistic bargaining structure, we are left without the ability to identify a unique allocation or a reasonable royalty rate. The Ultimatum Game framework can be useful in examining observed behavior, but it does not provide the predictive capabilities that are necessary for identifying a unique bargaining solution in more realistic settings. Below, this article considers a few potential solutions to this problem. It examines the time cost of negotiating and the role of substitute technologies.

B. Time Cost of Negotiating

When final producers and patentees negotiate royalties, it can be difficult to identify a reasonable allocation of the resulting surplus.[20] In many instances, the

[20] *Compare* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2005–08 (2007) (discussing how licensing negotiations between patentees and multiple

sum of reasonable claims by the bargaining firms exceeds the total available surplus.[21] This creates a hold-up problem that prevents the final product from being produced if it is not resolved.[22] Here, we consider the ability or inability of the time cost of negotiating to eliminate this problem.

Most patent royalty negotiations involve agreements over multiple years.[23] The negotiation can cover the remaining duration of the patent.[24] Therefore, negotiations are not over a single fixed sum of profits, they are over a stream of profits. This practical feature is important because it implies that the time spent negotiating is not free. The potential amount of surplus declines as bargaining continues, and if an agreement is not reached quickly, the size of that decrease may be considerable. However, this does not change the incentives of firms in a way that solves the hold-up problem.

Arguably, as the stream of profits declines, bargaining parties should be more likely to arrive at a decision to which all parties can agree. The total pie to split among them is declining as bargaining goes on. Economic analysis that assumes bargaining occurs in discrete increments of time may show that the cost of not reaching an agreement disciplines the bargaining parties into accepting less attractive offers. This would ultimately lead them to agree to an equitable division at the beginning of the negotiation process. This result is attractive because it identifies a unique reasonable royalty rate, but it relies on the unrealistic assumption of discrete time periods.

Time is continuous. Failing to reach an agreement at a particular moment in time does not imply that the negotiations must be put on hold until the end of a time period. When a bargaining party does not accept a proposed agreement, that party can immediately make a counteroffer, implying that their rejection does not lead to a large instantaneous reduction in the potential stream of profits. Unfortunately, delay for a few seconds does not discipline anyone. This story is analogous to a Prisoner's Dilemma in which individual incentives do not align with collective incentives.[25] Here, the incentives of an individual bargaining party at a particular moment in time do not coincide with the incentives of the group of bargaining firms. While the total pie continues to shrink, each bargaining party continues to demand a larger share.

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downstream firms may raise negotiated royalty rates), *with* Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMPETITION L. & ECON. 535, 561–63 (2008) (discussing how licensing negotiations between patentees and multiple downstream firms may lower negotiated royalty rates).

21 *E.g.*, Carlton & Shampine, *supra* note 1, at 538–41.

22 *Id.*

23 Abhinay Muthoo, *Bargaining Theory and Royalty Contract Negotiations*, 3 REV. OF ECON. RES. ON COPYRIGHT ISSUES 19, 22–23 (2006).

24 *Id.*

25 BLACK'S LAW DICTIONARY 1314–15 (9th ed. 2009).

The time cost of negotiating does not solve any hold-up issues for two reasons. First, it does not alter the balance of bargaining power. Each firm can still reasonably lay claim to the same fraction of the overall surplus. Second, the cost of waiting is not incredibly high because negotiations are a quick and dynamic process. While the entire negotiation may last a few months or even a year, one particular firm's counteroffer takes very little time. That is, negotiations are quick at the margin. Below, this article discusses the role of substitutable technologies.

C. Substitutes to Patented Technologies

Not all patented technologies are blocking. Many protected technologies have imperfect substitutes that a downstream producer can employ if an agreement is not reached. These substitutes render the patent less valuable, placing a constraint on what portion of the final surplus an owner of the protected technology can demand. This narrows the set of possible allocations of the surplus. It does not, however, select a single allocation as fair and reasonable.

Substitutes to protected technologies reduce the value of the protected technologies. A patent's maximum worth is the marginal value it adds to the final product.[26] The value added comes from either raising the quality of the final product or reducing production costs.[27] Regardless of whether the value comes from the quality-enhancing or cost-reducing channel, the substitutable technology has the same effect. The value of the patented technology falls because it may no longer be able to hold up the entire production process.

Substitutes can, in certain instances, remove a patentee's ability to block production of a final product. To begin, we revisit the simple bilateral monopoly case with an upstream patentee and a downstream monopolist producer. Suppose that producing the final good results in $100 of profits. That means there is a $100 surplus to be divided. As discussed above, each firm can reasonably demand the entire surplus, but this creates a potential hold-up problem. If neither firm accepts less than $100, an agreement is not reached, and the product is not produced. In fact, if the sum of their demands exceeds the amount of surplus created, no agreement is reached.

Now suppose that we introduce an alternative to the upstream patentee's technology. Assume that the alternative reduces the amount of available surplus to $80—possibly by increasing the downstream monopolist's costs by $20. In this setting, the patentee can only demand $20, implying that any reasonable demand it can make leaves positive profits for the downstream monopolist. The patentee cannot hold up production. This feature may be appealing and lead observers to the mistaken conclusion that substitutable technologies can solve the patent hold-up problem.

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[26] Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280, 286 n.12 (2010).

[27] *Id.*

Substitutable technologies can narrow the range of reasonable surplus allocations and limit the potential efficiency losses that arise when no agreement is reached. However, they do not identify a single reasonable licensing fee, nor do they ensure economically efficient production. Whether there are substitutable technologies or not, the desirability of reaching licensing agreements arises from the ability to generate the maximum possible amount of surplus. While the patentee in the above example cannot hold up the production of the final product, the patentee can halt the creation of $20 of surplus. It is still able to limit the amount of overall surplus that arises—inefficiently!

Dividing the surplus generated by the employment of patented technologies is not always simple, and economic analysis of the process often fails to predict a unique division. This complicates the implementation of FRAND royalty rates because it implies that identifying a reasonable rate is not always possible. The reasonable principle is intended to avert hold-up by restoring the *ex ante* bargaining solution, but there may not be a single *ex ante* solution to restore.

Arguably, limiting the amount of surplus that a patentee can extract is always desirable. However, conditional on final products being produced, any *ex ante* division of the surplus may be reasonable. Game theory analysis of sequential bargaining, the role of time discounting, and the role of substitutes all fail to identify a unique *ex ante* bargaining solution. The failure of economics to select a unique allocation implies that no particular royalty rate is more reasonable than all the others. Rather, the selection of a particular rate is arbitrary, and thus, unreasonable. Below, this article briefly discusses the legal mechanisms of takings and compulsory licensing to illustrate this point more clearly.

III. Legal "Solutions"

An economic inquiry into the relationship between FRAND royalty rates and *ex ante* bargaining solutions illuminates the potential difficulty of identifying a reasonable royalty rate. The reasonable principle is put into place to prevent patentees from engaging in *ex post* opportunism, but it is unclear how avoiding such opportunism should be achieved. This section briefly discusses the role of two legal mechanisms in order to illustrate the difficulty of determining what is reasonable.

A. Legal Mechanisms and the Elusive Search for Reasonableness[28]

A number of legal mechanisms are put into place in order to solve problems of hold-up. Owners of essential facilities or property can be forced to sell or license that property. Such intervention may be desirable because it solves the hold-up problem and ensures that the final product is produced. It does, however, impose a particular royalty rate that may not be any more reasonable than another rate.

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[28] For an excellent survey of the law and economics of takings, see Thomas J. Miceli & Kathleen Segerson, *The Economics of Eminent Domain: Private Property, Public Use, and Just Compensation*, 3 FOUND. & TRENDS IN MICROECONOMICS 275 (2007).

When a developer must assemble parcels of land to build an airport or a shopping mall, there may be a land assembly problem. As parcels are purchased, some owners realize that they can demand considerable sums for their parcels because the development cannot proceed without their land. As a result, pasture land with a fair market value of $10,000 per acre may not be able to be purchased for less than $1 million per acre. The alert landowners have realized that by holding out they can command a share of the surplus that the developer will create with its airport or shopping mall. Often, the solution is for the developer to enlist the aid of the government. The government can condemn the land and thereby compel the landowners to sell it for fair market value as pasture land.[29] The developer reimburses the government and acquires all of the needed parcels at pasture land prices. This means, of course, that the developer need not share any of the surplus with the original landowners.

The hammer manufacturer discussed earlier faces a similar problem to the example that we have just considered. The hammer heads and the handles have nominal value as paper weights, but considerable value as components of a hammer. Could the hammer patentee seek the government's aid in solving its intellectual property assembly problem? If so, the hammer head patentee and the handle patentee would be required to sell their patents to the government at fair market value. These values would be dictated by demand conditions in the paper weight market. Thus, the hammer patentee could assemble the needed property rights at a nominal cost and not have to share much of the surplus with the former hammer head and handle patentees.

This approach solves the assembly problem because neither the hammer head patentee nor the handle patentee can hold out. Consequently, the hammers will be produced and sold, which is socially desirable. But, there is a problem with this solution. Before hammers were invented by the hammer patentee, the hammer heads and handles were only good for use as paper weights. Once the hammer was invented, their values jumped because each is a vital component of a completed hammer. The fair market value of the handle patent and the head patent should reflect this fact. If it does not, then the takings solution involves serious equity issues. Specifically, this approach solves the resource allocation problem by arbitrarily conferring nearly all of the surplus on the hammer patentee. While it is true that the components have nominal value without this hammer invention, the hammer patent is worthless without either of the components. To avoid this equity problem, the surplus must be shared among the three patentees, and we are back where we started.

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[29] This business strategy can be traced to the Fifth Amendment to the United States Constitution, which provides in relevant part that: "nor shall private property be taken for public use, without just compensation." U.S. CONST. amend. V.

Another solution involves compulsory licensing.[30] However, this approach has precisely the same issues as the takings solution. If the patentees are required to license their patents, the obvious question is at what license fee. The appropriate fee—if it is not to be confiscatory—should reflect its value. In the hammer example, this is the central problem. Since each patent is essential, the value of each patent is indeterminate. While arbitrarily imposed license fees may resolve the resource allocation problem, equity problems remain.

When bargaining fails, and bargaining parties cannot reach an agreement, legal mechanisms can force licensing of intellectual property. These legal mechanisms display the same problem that FRAND rates exhibit. They impose a single allocation when it is not clear that that allocation is more reasonable than any other allocation.

IV. Concluding Remarks

From smart phones to pharmaceuticals, many products employ numerous patented technologies. Final producers must secure the rights to utilize these protected technologies in order to bring their products to market. As discussed extensively by Carlton and Shampine, downstream producers negotiate royalty rates with the owners of intellectual property, and the process of bargaining can present issues of hold-up. In particular, royalties may be negotiated after technology-specific investments have been made by the final producer. This allows owners of technology to demand higher rates. This issue is particularly relevant in industries where standards are adopted and final producers are required to pay for protected standard-essential technologies.

Attempting to avoid *ex post* hold-up, SSOs dictate that the owners of standard-essential patents must license those patents at FRAND rates. The goal is to restore the *ex ante* rate that would have arisen without the additional market power conferred on the patentee by the inclusion of their technology in the standard. This article has highlighted the fact that royalty negotiations are a bargaining process, and there exists no unique *ex ante* solution. While game theory analysis on bargaining structure, the time cost of negotiating, and the importance of substitutable technologies can provide some assistance into identifying plausible allocations, they fail to predict one particular division of the surplus.

When bargaining over a sum of money, any allocation that leaves everyone better off than had they not reached an agreement is feasible. No allocation that satisfies that condition is any more likely or more desirable than any other. Imposing one allocation over another is arbitrary, and it is impossible to say that an arbitrarily selected royalty rate is reasonable. The definition of a reasonable rate as the single rate that restores the *ex ante* outcome is flawed because no *ex ante* outcome exists.

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[30] Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1175–76 (2009).