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Patent Fair Use 2.0

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I. INTRODUCTION

In their book, *The Patent Crisis and How the Courts Can Solve It*, Dan Burk and Mark Lemley argue that patent law should be tailored to industry characteristics.\(^2\) They then explore doctrinal mechanisms by which courts can and should take up the laboring oar to accomplish the necessary tailoring. Burk and Lemley explore possibilities for industry-sensitive adjudication at numerous points throughout the patent lifecycle – from patent acquisition through claim interpretation to remedies.\(^3\) Essentially absent (or present only in faint echoes) from their catalog of current and potential “policy levers” for the courts are infringement exemptions. The absence is striking in light of the fact that copyright law, which has been much more prone than patent law to legislative accommodation to particular industries,\(^4\) nonetheless retains a robust judicial policy lever at the infringement stage – the fair use doctrine.\(^5\) Though striking, the lack of discussion is not at all surprising. Patent law has no fair-use-type doctrine and the “research

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\(^1\) Professor of Law, New York University School of Law. I am grateful to the participants in the Symposium “Bend or Break: Tailoring the Patent System to Promote Innovation,” which is the subject of this volume, and to participants at an NYU College of Law faculty workshop and Some Modest Proposals 4.0: A Conference About Pouring Academic Ideas into Legislative Bottles at Cardozo Law School, for helpful comments. I also gratefully acknowledge research support from The Filomen D'Agostino and Max E. Greenberg Research Fund.


\(^3\) Id. at Chs. 9 and 10.


\(^5\) For an excellent recent overview and analysis of the fair use doctrine in copyright law, see Pamela Samuelson, Unbundling Fair Uses, 77 Fordham L. Rev. 2537 (2009).
exemptions” that exist are either very narrow\textsuperscript{6} or available only in highly specific circumstances.\textsuperscript{7}

In this Essay, I will argue that a fair-use-type infringement exemption should take its place in patent law’s toolbox of policy levers and propose specific factors that should govern such an exemption.\textsuperscript{8}

A. The Non-Contextual Focus of Patent Doctrine

Particularly in the United States, policing the scope of patent rights has been, at least in principle, a highly front-loaded enterprise, in which the patent scope determination is intentionally divorced from the context of infringement. An extensive set of patent validity doctrines, including limits on patentable subject matter,\textsuperscript{9} the requirements of utility,\textsuperscript{10} novelty,\textsuperscript{11} and nonobviousness,\textsuperscript{12} the written description, enablement, and best mode requirements,\textsuperscript{13} and the requirement of definite claims\textsuperscript{14} have served as a series of “doors”\textsuperscript{15} through which a prospective patentee must pass to obtain patent protection. The perspective of the “person having ordinary skill in the art,” or PHOSITA, has been the primary mechanism by which the hurdles to obtaining patent protection are adjusted to particular technological areas.\textsuperscript{16} Until recently, once a patent was obtained, patent exclusivity was unyielding: injunctions were

\textsuperscript{6} Madey v. Duke University, 307 F.3d 1351, 1362 (Fed. Cir. 2002) (university research did not qualify for the “very narrow and strictly limited” common law research exemption)
\textsuperscript{8} In this effort I will build on the seminal work on “patent fair use,” Maureen A. O’Rourke, Toward a Doctrine of Fair Use in Patent Law, 100 Colum. L. Rev. 1177 (2000).
\textsuperscript{9} 35 U.S.C. § 101
\textsuperscript{10} 35 U.S.C. §§ 101, 112
\textsuperscript{11} 35 U.S.C. § 102
\textsuperscript{12} 35 U.S.C. § 103
\textsuperscript{13} 35 U.S.C. § 112
\textsuperscript{14} 35 U.S.C. § 112
\textsuperscript{15} In re Bergy, 596 F.2d 952, 960 (C.C.P.A. 1979)
\textsuperscript{16} See, e.g., Rebecca Eisenberg, Obvious to Whom? Evaluating Inventions from the Perspective of the PHOSITA, 19 Berkeley Tech. L. J. 885 (2004); Cyril A. Soans, Some Absurd Presumptions in Patent Cases, 10 IDEA 433, 438 (1966) (coining the name “Mr. PHOSITA”).
virtually certain at the end of a successful patent infringement suit17 and compulsory licenses
were scorned.18 An upfront-focused system has several purported advantages. Focusing the
debate over patent rights at the front end is intended to bring certainty and, similarly to property
rights in other contexts, to provide secure rewards to those who invest in technology and thus to
facilitate a market.19

Of course, this system has never been as simple as the upfront doctrinal focus suggests.
The validity of patent claims is commonly challenged at the point of enforcement during
litigation.20 Though supposedly independent of the context of infringement, claim interpretation
is also a ubiquitous subject of dispute in litigation.21 On the infringement side, the doctrine of
equivalents developed to ensure that patentees were not deprived of their rewards by
“unscrupulous copyists”22 or, in more recent iterations, by unforeseeable and tangential

injunctions in patent cases). The Supreme Court in eBay, id. at 394, softened this rule to some extent in some
circumstances as discussed further infra.
18 See, e.g., Colleen M. Chien, Cheap Drugs at What Price to Innovation: Does the Compulsory Licensing of
Pharmaceuticals Hurt Innovation, 18 Berkeley Tech. L. J. 853, 857-64 (2003); Joseph A. Yosick, Compulsory
Patent Licensing for Efficient Use of Inventions, 2001 U. Ill. L. Rev. 1275 (discussing the history of compulsory
licensing in the United States).
Rules, and Inalienability: One View of the Cathedral, 85 HARV. L. REV. 1089, 1092-93 (1972). For discussions of
the debate over the merits of “property rules” and “liability rules” in intellectual property, see, e.g., ROBERT P.
Put Innovators at Risk (2008); Mark A. Lemley & Philip J. Weiser, Should Property or Liability Rules Govern
also MercExchange, LLC v. eBay, Inc., 401 F.3d 1323, 1338 (Fed. Cir. 2005) (“Because the ‘right to exclude
recognized in a patent is but the essence of the concept of property,’ the general rule is that a permanent injunction
will issue once infringement and validity have been adjudged.”), rev’d sub nom EBay Inc. v. MercExchange, L.L.C.,
20 Chisum on Patents 19.02. Indeed, it may soon be somewhat easier to challenge patent validity. The Supreme
Court has recently granted certiorari in Microsoft Corp. v. 141 Ltd., 2010 U.S. Lexis 9311 (November 29, 2010 )
(granting petition for certiorari), to decide whether to reduce the burden of proving invalidity at trial, at least with
respect to prior art not previously considered by a patent examiner.
21 See, e.g., Dan L. Burk and Mark A. Lemley, Fence Posts or Sign Posts? Rethinking Patent Claim Construction,
technological developments. Nonetheless, the basic conception of a system of upfront barriers followed by secure rights is well-ensconced.

Around the turn of the twenty-first century, there began to be widespread dismay over the state of the patent system. A number of factors contributed to the sense that something had gone wrong. Globalization of the system under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) pitted (or at least seemed to pit) patent rights against critical public health interests. Patent protection expanded into subject areas, such as business methods, software, and biotechnology, in which it was more difficult to define rights than it had been in the paradigmatic chemical and mechanical fields. These and other factors led to a burgeoning of the sheer number of patents the United States Patent and Trademark Office (PTO) was required to consider. Technological changes increased the importance of

23 Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 304 F.3d 1289, 1290 (Fed. Cir. 2002)
27 See, e.g., BESSEN & MEURER, supra note 19 and references therein.
both cumulative innovation and complex products, lending greater salience to overlapping patent rights. Innovation paradigms are also evolving, with user innovation, open innovation, and collaborative and open source approaches playing an increasingly important role. Rather than purchasing products over which the patent rights are “exhausted” by the sale, consumers increasingly are licensees (and hence potential infringers) with ongoing obligations to patent holders.

Besides leading to a sense, at least in many quarters, of a patent system run amok, these changes drove a wedge between industries, since the changes played out in technology-specific ways. In response, proposals for reform abounded. Legislation has been introduced repeatedly in Congress and, as Burk and Lemley explain, for the most part become stymied by opposing pressures from different industry sectors.

With the legislature at an impasse, the courts – particularly the Supreme Court – and the USPTO have stepped in with attempts to rein in perceived over-patenting. Commentators have

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29 There is a large and contentious literature on this topic, which is reviewed recently (and skeptically) in Jonathan Barnett, *Property as Process: How Innovation Markets Select Innovation Regimes*, 119 Yale L.J. 384 (2009).
31 See Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008) (reaffirming that the patent exhaustion doctrine precludes a patent holder from asserting a claim against a third party purchaser).
32 Burk & Lemley, supra note 2.
33 Id. See also Jay P. Kesan and Andres A. Gallo, *The Political Economy of the Patent System*, 87 N.C. L. Rev. 1341 (2009). Note, however, that at this writing there is renewed optimism regarding the potential for passage of substantive patent reform legislation. See Patent Reform Act of 2010, S. 515. The current legislation would not provide the kind of ex post contextually sensitive enforcement advocated here, however.
also been prolific with suggestions for improving “patent quality.” With important exceptions, to which I will return, the interventions and proposals have maintained the focus on better defining the ex ante scope of patent exclusive rights.

One important example of this focus is the Supreme Court’s recent opinion in KSR v. Teleflex, in which the Court arguably raised the bar to patentability by recognizing that at least some level of creativity is the province of the ordinary artisan. Even more recently, the Supreme Court and Federal Circuit have moved to rein in the scope of patentable subject matter, particularly with regard to the interpretation of the ban on the patenting of “abstract ideas” which is crucial to determining the scope of patent rights in business methods and software. The Federal Circuit had adopted a virtually unbounded “useful, concrete, and tangible result” test for patentable subject matter. Heeding signals of discontent with such a broad approach to automatically confer market power); Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc., 548 U.S. 124, 138 (2006) (Breyer, J., dissenting) (criticizing the Court for choosing not to decide this case and supporting a more restrictive view of patentable subject matter); Merck KGaA v. Integra Lifesciences I, Ltd., 545 U.S. 193, 208 (2005) (holding “the use of patented compounds in preclinical studies is protected” and is not infringement in most circumstances). See also John F. Duffy, The Festo Decision and the Return of the Supreme Court to the Bar of Patents, 2002 Sup. Ct. Rev. 273 (2002).

35 One rough measure of the interest in the topic is that a LEXIS search in the US Law Reviews and Journals database yields 402 hits for the phrase “patent quality,” (search conducted on 5/4/2010), while there were only 22 such hits prior to 2000.


38 Id. at 421.

39 In re Bilski, 545 F.3d 943 (Fed. Cir. 2008).

40 State Street Bank & Trust Co v. Signature Financial Group, Inc., 149 F.3d 1368, 1373
patentable subject matter from at least some Supreme Court justices, the USPTO began to issue more patentable subject matter rejections and the Federal Circuit moved to narrow its approach. While rejecting the Federal Circuit’s attempt to enshrine a specific “machine or transformation of matter” test for unpatentable “abstract ideas,” the Supreme Court, in a divided opinion, rejected the overly permissive “useful, concrete, and tangible result” test,” and reaffirmed its traditional concerns about the patenting of abstract ideas. While there was no majority for a categorical ban on business method patents, four justices would have banned them, while another four expressed the point of view that business method patents “raise special problems in terms of vagueness and suspect validity” and suggested that it might be possible to craft a categorical rule against patenting some (as-yet-unspecified) category of business methods. The PTO has also made efforts to improve upfront quality control of business method patenting through its “second pair of eyes” review of certain business method patents and its experimental “peer-to-patent” program.

The Federal Circuit’s claim construction jurisprudence reflects various attempts to establish an upfront clarity for the scope of patent rights, including the focus on the specification and prosecution history as sources of claim interpretation, the ill-fated attempt to use dictionaries to establish claim term meanings, the downplaying of “extrinsic evidence” and of

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41 See, e.g., In re Comiskey, 554 F.3d 967 (Fed. Cir. 2009), Bilski, supra note __, In re Nuijten, 515 F.3d 1361 (Fed. Cir. 2008).
43 Id. at 3226-27.
44 Id. at 3231 (Stevens, J., concurring).
45 Id. at 3229.
47 See www.peertopatent.org.
48 Phillips v. AWH Corp., 415 F.3d 1303, 1315-17 (Fed. Cir. 2005) (en banc); Vitronics Corp. v. Conceptronic, 90 F.3d 1576, 1582-83 (Fed. Cir. 1996).
the factual underpinnings of claim interpretation, and the insistence that claim meaning be established independently of the product or process that is accused of infringement. Recent expansions in the written description and utility doctrines similarly focus on reining in over-patenting at the front end.

The long-running back-and-forth between the Federal Circuit and the Supreme Court concerning the contours of the doctrine of equivalents can also be seen largely as a colloquy over the extent to which claim scope can and should be set in stone at issuance. While the doctrine eventually established recognizes the theoretical possibility of a need to encompass activity beyond the scope of the literal claims, the foreseeability approach ensures that cases applying the doctrine will be few and far between. Unfortunately, the results of the focus on upfront clarity have not been encouraging.

Claim construction, for example, remains a mess, with the Federal Circuit disagreeing with the

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50 Phillips, 415 F.3d at 1317-19; Cybor Corp. v. Fas Techs., 138 F.3d 1448 (Fed. Cir. 1998) (en banc). But see Cybor, 138 F.3d at 1473-78 (Rader, J., dissenting) (criticizing the Federal Circuit for adopting a de novo review standard for claim construction).
52 Ariad Pharms., Inc. v. Eli Lilly & Co., 598 F.3d 1336 (Fed. Cir. 2010) (en banc).
53 In re Fisher, 421 F.3d 1365 (Fed. Cir. 2005).
54 Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 493 F.3d 1368 (Fed. Cir. 2007); Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002); Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 234 F.3d 558 (Fed. Cir. 2000) (en banc); Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 520 U.S. 17 (1997); Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 72 F.3d 857 (Fed. Cir. 1995); Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512 (Fed. Cir. 1995) (en banc). The doctrine of equivalents imposes infringement liability when an allegedly infringing product or process does not fit literally within a patent’s claims but would be considered “insubstantially different” by a PHOSITA. For example, an older case considered seminal to the development of the modern doctrine of equivalents is Winans v. Denmead, 56 U.S. 330 (1853). In that case the Court held that a freight car with an octagonal cross-section infringed a patent claiming a car in the shape of a frustum of a cone. Essentially, the Court held that an octagonal cross-section was equivalent to the claimed circular cross-section in terms of its technological function. More recent cases largely confine the scope of the doctrine of equivalents to equivalents that would have been unforeseeable at the time of patenting, at least for claims that have been amended during patent prosecution. Since many, if not most, claims are amended, this is a significant cabining of the doctrine.
55 Festo, 535 U.S. at 740.
district courts in a large number of cases.\textsuperscript{57} Validity is routinely disputed in litigation, though it is possible that proposals to permit early stage third party oppositions to patent rights might improve the situation.\textsuperscript{58} In some industries, notably in information technology, the uncertainty of patent scope appears to limit their effectiveness in deterring infringement upfront, except in portfolios\textsuperscript{59}

Thus, while there is much to be said for well-defined patent scope, experience demonstrates that there are important limitations, both theoretical and practical, to an entirely upfront approach. These limitations include the unpredictability of technology, and hence the inability to determine a priori how much downstream innovation a particular claim will be deemed to encompass\textsuperscript{60} or how intertwined a particular patented invention will become with other “pieces” of technology;\textsuperscript{61} the fact that patented technology, especially in some industries, is employed in contexts in which the spillover effects of exclusive rights vary widely;\textsuperscript{62} and the


\textsuperscript{60} Patent jurisprudence recognized this issue early on, particularly in discussions of the scope of patentable subject matter. See, e.g., Gottschalk v. Benson, 409 U.S. 63, 67-68 (U.S. 1972); O’Reilly v. Morse, 56 U.S. 62, 113 (U.S. 1854)

\textsuperscript{61} See, e.g., Heller & Eisenberg, supra note 25 for a discussion of the potential for “anticommons” problems with upstream patenting.

\textsuperscript{62} For example, an invention may serve both as a commercial product (e.g. a pharmaceutical or diagnostic test) and as a research tool. The implications of exclusive rights may be quite different in the two contexts. For a discussion of this distinction, see Katherine J. Strandburg, User Innovator Community Norms: At the Boundary between Academic and Industry Research, 77 Fordham L. Rev. 2237 (2009).
inability to determine whether a particular invention might otherwise be independently invented and disseminated by another inventor before the expiration of the twenty-year patent term.\textsuperscript{63} Commentators have also questioned the efficiency of investing in clearly determining property rights up front, in light of the very large fraction of patents that are never licensed, traded, or enforced (a clear distinction from real and personal property).\textsuperscript{64} Some have even suggested reverting to a registration system for patents in light of the difficulties in examining patents at issuance.\textsuperscript{65}

These limitations, which are very real, are in some respects the flipside of the frequently invoked concern with hindsight bias\textsuperscript{66} (and the less frequently invoked, but equally important, countervailing attribution error\textsuperscript{67}). While hindsight bias and the attribution error arise because of the difficulty in truly appreciating the past,\textsuperscript{68} the failings of a focus on ex ante boundary-setting

\textsuperscript{63} The Federal Circuit has at times considered near-simultaneous invention to be indicative of obviousness and at other times declined to do so. See Chisum on Patents, 5.05[7]; Environmental Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 n.7 (Fed. Cir. 1983)

\textsuperscript{64} Lemley, supra note 59.


\textsuperscript{67} See, e.g., Bradford S. Simon, Intellectual Property and Traditional Knowledge: A Psychological Approach to Conflicting Claims of Creativity in International Law, 20 Berkeley Tech. L.J. 1613 (2005); Joseph S. Miller, Hoisting Originality, 32 Cardozo L. Rev. 451, 485-86 (2009) (noting that “people respond to situations more uniformly than a typically personality-centered view of human behavior would suggest”)

\textsuperscript{68} Well-recognized difficulties of this type in patent law include: i) the difficulty in determining, especially at the time of examination, whether a particular invention is nonobvious or whether it is simply part of an ongoing stream of routine advances, see, e.g., articles within 12 Lewis & Clark L. Rev., Business Law Forum: Nonobviousness—The Shape of Things to Come; ii) the imprecision of language, and hence the inability to ensure that claim terms will be interpreted as conceived of by the patentee and examiner at the time of examination, see, e.g., Festo, 535 U.S. at 731-32 (discussing limitations of language as a rationale for the doctrine of equivalents). These difficulties are exacerbated by the inability of non-technically-trained judges and juries to capture accurately the perspective of the PHOSITA About this quandary, Learned Hand, writing in 1911, opined: “I cannot stop without calling attention to the extraordinary condition of the law which makes it possible for a man without any knowledge of even the rudiments of chemistry to pass upon such questions as these. The inordinate expense of time is the least of the resulting evils, for only a trained chemist is really capable of passing upon such facts, e.g., in this case the chemical character of Von Furth's so-called "zinc compound," or the presence of inactive organic substances. In Germany, where the national spirit eagerly seeks for all the assistance it can get from the whole range of human knowledge, they do quite differently. The court summons technical judges to whom technical
arise from the generally more severe difficulties in anticipating the future of technological evolution. The quest for ex ante certainty in intellectual property rights is doomed to failure. Nothing in our experience with real or personal property can really compare to the radical uncertainty that is endemic to patent law. While there may be occasional situations in which the value of a piece of real property drastically changes as a result of, say, a discovery of valuable minerals, a decision to build a shopping mall down the street (or even an economic recession), uncertainty moves from the periphery to the center when it comes to intellectual property. Moreover, the overlapping nature of patent rights dramatically increases the potential for windfalls and the extent to which windfalls spill over to implicate the future of innovation.

Given the important implications of technological unpredictability, one might expect patent law to have developed a robust set of ex post doctrines to deal with it. This has not been the case. Where such doctrines have been developed in the past, for the most part mere vestiges of them remain today. Thus, as already discussed, the doctrine of equivalents plays very little role in today’s infringement determinations. Doctrines that might cabin the enforcement of patent rights have fared much worse. The exemption for experimental use of patented inventions, with the exception of a statutory exemption focused on dealing with regulatory delay in the pharmaceutical context, has shrunk arguably to the point of non-existence in Federal Circuit case questions are submitted and who can intelligently pass upon the issues without blindly groping among testimony upon matters wholly out of their ken. How long we shall continue to blunder along without the aid of unpartisan and authoritative scientific assistance in the administration of justice, no one knows; but all fair persons not conventionalized by provincial legal habits of mind ought, I should think, unite to effect some such advance.” Parke-Davis & Co. v. H. K. Mulford Co., 189 F. 95, 115 (C.C.D.N.Y. 1911).

69 The unpredictability I focus on here is distinct from a form of unpredictability that is recognized in patent doctrine — the concept of “unpredictable arts.” See, e.g., Sean B. Seymore, The Enablement Pendulum Swings Back, 6 NW. J. TECH. & INTELL. PROP. 278 (2008) (describing the implications for “unpredictable arts” for patent disclosure doctrine). The doctrine of “unpredictable arts” recognizes the ex ante unpredictability of success for inventive efforts in some arenas, whereas I focus here on the unpredictability of how technology will progress after invention.

70 Allison & Lemley, supra note 56.
The so-called “reverse doctrine of equivalents,” which allows courts to find non-infringement in cases where an accused product or process fits within the claim scope despite radical change by the infringer, is occasionally acknowledged but never applied. The Federal Circuit has clarified that there is no “de minimis” exception to patent infringement. The doctrine of patent misuse is rarely successful at the Federal Circuit; moreover, what it reaches outside of antitrust violations is increasingly unclear. Unlike some other jurisdictions, the United States has no recent history of working requirements and makes very limited use of compulsory licensing.

Of course, skeptics will respond to arguments in favor of contextual infringement exemptions with a number of critiques. First, one might argue that incorporating infringement exemptions and defenses into patent law will undermine the certainty of rights that is the aim of the emphasis on defined patent scope. Second, one might argue that exemptions and defenses will undermine incentives to invent, disclose and disseminate (through commercialization) new

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72 Burk & Lemley, supra note 2 at __; Roche Palo Alto LLC v. Apotex, Inc., 531 F.3d 1372, 1378 (Fed. Cir. 2008) (“The reverse doctrine of equivalents is rarely applied, and this court has never affirmed a finding of non-infringement under the reverse doctrine of equivalents.”). In Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565 (1991), the Federal Circuit considered a reverse doctrine of equivalents argument in a case involving “human Factor VIII:C, a complex protein that occurs naturally in normal blood and is essential to the clotting of blood.” The patentee had discovered a process for isolating factor VIII:C from blood plasma to a high level of purity. The product claims at issue encompassed factor VIII:C of a particular purity and potency. The accused infringer, Genentech, had produced factor VIII:C using a recombinant process that did not involve the purification of naturally occurring factor VIII:C. Genentech argued that its recombinantly produced factor VIII:C was noninfringing under the reverse doctrine of equivalents because it was “changed ‘in principle’” from the patented substance. It argued that “the specific activities and purity that are obtainable by recombinant technology exceed those available by the Scripps process.” The court reversed the district court’s grant of summary judgment on infringement, suggesting that the reverse doctrine of equivalents might apply in this circumstances, depending upon the facts. Unfortunately for those favoring revival of the doctrine, the case settled and the issue was never brought to trial.
75 Chisum on Patents 19.04
Both of these arguments have some appeal, but neither is sufficient to outweigh the potential benefits of appropriately tailored post hoc policy levers. Given the current state of things, it is not at all clear that much certainty would be lost by adopting a set of exemptions and defenses sensitive to the context of an alleged infringement. In practice, as already discussed, the validity and scope of a patent are not finally determined until the outcome of litigation is known. If an infringement exemption can do a reasonably predictable job of improving social welfare at the back end, it may be worth some additional blurring of the already muddy boundaries of patent rights. If we institute a fair-use-type infringement exemption, both inventors and users of patented technology will naturally incorporate the potential for such exemptions into their planning (including licensing negotiations). Indeed, the primary distinction between the present situation and one with a robust system of exemptions is not really between ex ante certainty and ex post adaptability, but between a system that recognizes the significance of the context in which patented technology is used and one that does not.

The potential effects of contextualized infringement determinations on incentives are also insufficient grounds to reject these potential policy levers outright. First, as the example of the doctrine of equivalents shows, it is possible to use ex post doctrines to enhance a patentee’s position as well as to weaken it. Moreover, any cabining of patent rights – whether through patentable subject matter, obviousness, utility, or any other doctrine – in principle “reduces” some kinds of incentives. On the flip side, any expansion of patent rights – via any doctrine – in

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principle adds to the deadweight loss of exclusivity. The point of using doctrines as policy
levers,\textsuperscript{79} however, is to get beyond this standoff to consider more specifically questions such as
“Incentives to do what?” or “What specific decreased incentives in exchange for what particular
social benefits?”\textsuperscript{80}

Instituting ex post exemptions and defenses is one way to tailor patent rights to these
more specific questions. So, for example, where the increase in incentives provided by enforcing
patent rights in a particular context is small relative to the costs of exclusivity or the social cost
of the additional incentives is particularly large, an exemption or defense can carve out specific
types of uses, using a scalpel rather than a cleaver to shape a socially beneficial patent scope.

Allowing more flexibility at the time of infringement would also take the pressure off of
doctrines such as patentable subject matter and claim construction. For example, I have argued
elsewhere for a “business method use” exemption, which would avoid the difficulties inherent in
determining, from abstract claim language, whether a particular claimed invention “is” a
business method.\textsuperscript{81} Similarly, I have argued that a research use exemption can avoid the need to
determine whether a particular invention “is” a research tool in the abstract.\textsuperscript{82} Such ex ante (and
unavoidably abstract) determinations would be necessary to implement patentable subject matter
exclusions, but are not necessary to implement use exemptions. Almost by definition, an
infringement exemption can account for the fact that different uses of patented technology have

\textsuperscript{80} A similar argument responds to any concerns about the effects of implementing a “fair-use-type” exemption on ex ante licensing transactions. The value of patent rights directly affects the outcome of licensing negotiations. Uncertainty in the scope of rights affects transaction costs. To the extent that a fair-use-type exemption increases uncertainty it will increase transaction costs. But a carefully designed exemption may not lead to a large increase in transaction costs overall. This is because an exemption will clarify rights in some instances (i.e. it will be possible to predict with reasonable certainty that there is no liability even if the scope of the patent claims is uncertain), have no effect in many cases (where there is clearly infringement and clearly no exemption), and have only a minor effect in many other circumstances (where there is already a high degree of uncertainty as to the scope of the rights).

\textsuperscript{82} Strandburg, Users as Innovators, supra note 30 at 500.
different social costs and benefits. Neither social nor private costs and benefits are all-or-nothing quantities.

One important exception to the present dearth of ex post policy levers in patent law arises out of the Supreme Court’s 2006 decision in eBay v. MercExchange. There, a unanimous Supreme Court overturned a Federal Circuit rule that virtually guaranteed an injunctive remedy for infringement. The Court ruled instead that the grant of an injunction is a discretionary measure decided after considering a “well-established” four-factor test, taking into account whether the plaintiff can establish “(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.” The justices differed as to the extent to which this test aimed to take account of changes in the innovation environment, but lower courts have relied on the case to provide leeway to take account of the effects that patent injunctions can have on complex, inter-related technologies, particularly in dealing with non-practicing entities. Besides exercising discretion with respect to the granting of injunctions, courts have begun to award ongoing royalties – which have many of the same effects as compulsory licenses.

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84 MercExchange, LLC v. eBay, Inc., 401 F.3d 1323, 1338 (Fed. Cir. 2005) (“Because the ‘right to exclude recognized in a patent is but the essence of the concept of property,’ the general rule is that a permanent injunction will issue once infringement and validity have been adjudged.”), rev’d sub nom EBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 393-94 (2006).
85 547 U.S. at 391.
86 Compare 547 U.S. at 394-95 (Roberts, J., concurring) with 547 U.S. at 395-97 (Kennedy, J., concurring).
Of course, after *eBay v. MercExchange*, one must ask whether more is needed. Is the
discretion now afforded to courts at the remedies stage sufficient to provide ex post contextual
policy levers where they are desirable? There are three basic reasons why the answer to this
question is no. First, as mentioned above, the *eBay* factors are not tailored to promote
innovation. There is no particular reason to think that courts applying them will make the most
socially beneficial choices about when to grant (or not to grant) injunctive relief. Thus, at the
very least, it would be desirable to explore factors that courts should consider in making the
decision. Second, there are reasons to anticipate specific types of market failures in patent
licensing that are not illuminated by the *eBay* test. Many of these parallel those that have been
advanced to justify fair use in copyright law. Third, there are situations in which the social costs
of exclusivity in a particular context simply outweigh the social benefits of the additional patent
incentive provided by infringement liability in that context. The ex ante doctrines of patentable
subject matter, nonobviousness, and so on cannot identify these situations.

The lower courts’ responses to the *eBay* ruling demonstrate that district court judges, at
least, find it useful to have some mechanism for ex post tailoring at their disposal. The extent to
which courts have grasped at this slim reed of ex post tailoring power begs the question whether
there might be other and better ways to design a set of “policy levers” to be applied at the time of
infringement. The rest of this Article considers that question. Part II reviews a previous
proposal for “patent fair use” and discusses how social and technological changes since that
proposal was made have bolstered the case for a fair-use-type exemption and provided insights
into how it should be designed. Part III discusses proposals to deal with some of the issues
discussed in Part II either by beefing up existing doctrine or by some form of an independent
inventor defense and concludes that those proposals are less desirable than a general fair-use-
type defense. Part IV provides the justification for the “patent fair use 2.0” proposal, sets it out in some detail, and then illustrates how it might be applied to the cases of open source software and essential medicines. Part V concludes.

II. WHY PATENT FAIR USE NOW?

A. Professor O’Rourke’s Patent Fair Use Proposal

This Article is certainly not the first to recognize many of these justifications for infringement exemptions. In particular, a groundbreaking article by Maureen O’Rourke ten years ago proposed a version of “patent fair use” based on many of the considerations that will be discussed here.89 Reasoning by analogy to fair use in copyright law and expanding on existing patent doctrines, O’Rourke identified a list of five factors, which she argued should form the basis of a patent fair use doctrine: “i) the nature of the advance represented by the infringement; ii) the purpose of the infringing use; iii) the nature and strength of the market failure that prevents a license from being concluded; iv) the impact of the use on the patentee’s incentives and overall social welfare; and v) the nature of the patented work.”90

O’Rourke’s explication of these factors focused on the potential for market failure in the patent system and on the implications of a fair use finding for patentee incentives to invent. Thus, for instance, she notes that “commercial use is much more likely to harm the patentee’s incentives without a corresponding increase in social welfare,”91 points to the statutory exemption for use of patented inventions to prepare for Food and Drug Administration (FDA) approval as an example of a situation in which the social value of certain types of infringement has been deemed to outweigh any corresponding depression of incentives,92 and discusses a

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90 Id. at 1205.
91 Id. at 1206.
92 Id. at 1197-98.
number of situations in which fair use could be used to ensure that patentees do not have overly
broad ability to hamper follow-on innovation. For example, her first factor is included for
reasons similar to those justifying the reverse doctrine of equivalents – to protect radical
improvers from hold-up by earlier patentees.93
O’Rourke focuses heavily on the need for fair use in circumstances in which network
effects give patentees overly broad control over markets extending beyond the market for the
patented invention itself,94 discussing the case of software application programming interfaces
(APIs) in detail.95 She recognizes the potential for licensing breakdown in situations involving
complex products that implicate many patents (the “anticommons” problem) and the related
possibility that licensing breakdown might undermine the “blocking patents” doctrine.96 The
blocking patents doctrine assumes that those who improve significantly upon patented inventions
will be able to coordinate exploitation of the improvement with the initial patentee because both
parties will be motivated to cross-license.97
Importantly, O’Rourke suggests that a fee should sometimes be charged for patent “fair
use.”98 In this respect her proposal foreshadows the practices of those district courts that have
ordered ongoing royalties while denying injunctions in the wake of eBay v. MercExchange.99

B. Signs of the Times: O’Rourke’s Concerns Remain Valid Today

Most of the arguments O’Rourke made in her 2000 article remain compelling today.

Indeed, in many respects, O’Rourke’s article was ahead of its time. Many of the justifications
she advanced for some form of patent fair use have become considerably stronger in recent

93 Id. at 1228-30.
94 Id. at 1233-34.
95 Id. at 1211-35.
96 Id. at 1236-39. See also, Robert Merges, Intellectual Property Rights and Bargaining Breakdown: The Case of
97 O’Rourke, supra note 89 at 1194.
98 Id. at 1234 – 35.
99 See discussion, supra.
years. While the anticommons problem was recognized at the turn of this century, the particular
issues raised by non-practicing entities (so-called “patent trolls”) in relation to complex
technology were not yet widely recognized.100 By 2006, however, Justice Kennedy’s
concurrence in eBay v. MercExchange responded explicitly to concerns about non-practicing
entities and the problem of hold-up for complex technologies.101 Similarly, while the research
exemption was a topic of concern in 2000, the Federal Circuit’s 2002 Madey v. Duke opinion
heightened concerns about the diminishing scope of the common law exemption.102 The issue of
unauthorized research tool use remains much discussed and unresolved.103 Longstanding
concerns about the applicability of patent infringement doctrine to reverse engineering of
software, a central focus of O’Rourke’s analysis, also remain.104

C. Signs of the Times: Evolving Reasons for Patent Fair Use

Not only have developments over the past ten years heightened some of the concerns
motivating O’Rourke’s fair use proposal, but also new issues have come to the fore that both
provide additional rationales for a fair-use-type infringement exemption and help us to flesh out
relevant factors for such an exemption.

Traditionally, one could divide the world of potential patent infringers into several
categories: commercial users of industrial processes, commercial manufacturers of patented

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100 The first use of the term “patent troll” in a law review article, for example, was in 2003. Michael J. Meurer, Controlling Opportunistic and Anti-Competitive Intellectual Property Litigation, 44 B.C. L. REV. 509 (2003).
101 547 U.S. at 396 (“An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees. . . . For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent.”) (Kennedy, J., concurring).
103 See id. at n. 7 (explicitly leaving open the status of research tools under the statutory research exemption); Proveris Sci. Corp. v. Innovasystems, Inc., 536 F.3d 1256 (Fed. Cir. 2008) (device used in development of FDA submissions but not itself subject to FDA approval was not covered by statutory research exemption). See also Strandburg, Users as Innovators, supra note 30 at 502-03.
products, innovators building upon patented products or processes, and consumers of patented products. Commercial users of industrial processes and manufacturers of patented products could be expected to negotiate patent licenses. Follow-on innovators were protected by a complex of patent doctrines: the reverse doctrine of equivalents (or its predecessors) in principle protected radical innovators from hold-up by earlier inventors; the experimental use exemption permitted inventors to build upon the patent disclosures of earlier inventors; and the doctrine of blocking patents, which allows the patenting of improvements without the permission of earlier inventors (in contrast to the situation in copyright law),\textsuperscript{105} encouraged inventors of complementary inventions to negotiate cross-licenses. In a world dominated by manufacturer innovation, there was little need to worry about infringement by what we would now call end users of technology. Consumers of patented products were protected by the doctrine of patent exhaustion (which holds that a patentee’s rights in a particular artifact are “exhausted” when the artifact is sold to a consumer by an authorized manufacturer).\textsuperscript{106}

Recent changes in law and technology have changed the landscape. Traditional approaches may no longer suffice to induce the optimal level of invention, disclosure, and dissemination of new technology. Here I discuss five important developments, which provide reasons for concern about the balance among patent exclusivity, access, and follow-on innovation: i) the increasing importance (and recognition of) non-traditional paradigms of innovation, including open source approaches and user innovation, especially within communities of users; ii) a breakdown of the effectiveness of patent exhaustion and repair and reconstruction as means to take consumers out of the patent infringement loop; iii) growing

\textsuperscript{106} The Supreme Court recently reaffirmed this doctrine in Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109, 2117 (2008). See also Chisum on Patents, 16.03[2][a].
evidence of the ineffectiveness of patent notice and search, especially in some technological arenas; iv) increasing recognition of the prevalence of independent invention among potential infringers; and v) the increasing ubiquity of software in technology, which is accompanied by a growing separation of design from manufacture and a movement toward mass customization. Each of these developments upsets assumptions underlying the traditional patent regime, changing the balance of costs and benefits of patenting in ways that may justify broader infringement exemptions.

1. Alternative Paradigms of Innovation

Numerous patent doctrines reflect an assumption of an industrial seller innovator. Yet, as others and I have discussed in more detail elsewhere, that paradigm is increasingly out of date.\textsuperscript{107} The success of the open source software movement, with its increasingly important role in commercial ventures, is itself a game changer.\textsuperscript{108} Moreover, that success has spawned a number of attempts to introduce similar collaborative models into other arenas, including biotechnology,\textsuperscript{109} agriculture,\textsuperscript{110} and traditional tangible products.\textsuperscript{111} Alongside the growing importance of this particular model of collaborative innovation is increasing recognition of the importance of users as technology innovators and of the extent to which groups of users of similar technology often share their inventions freely with one another, even in commercial

\textsuperscript{107} See, e.g., Strandburg, Users as Innovators, supra note 30; Benkler, supra note 30; von Hippel, supra note Error! Bookmark not defined.


\textsuperscript{109} For a recent review of these efforts, see Emily Marden, Health Care & Pharmaceuticals: Open Source Drug Development: A Path to More Accessible Drugs and Diagnostics?, 11 Minn. J.L. Sci. & Tech. 217 (2010). See also Strandburg, Evolving Innovation Paradigms, supra note 30 and references cited therein.


\textsuperscript{111} For an interesting example of such a project see www.quirky.com. Of course, community innovation of tangible products is not at all new. See, for example, Nikolas Franke and Sonali Shah, How Communities Support Innovative Activities: An Exploration of Assistance and Sharing among End-Users, 32 Res. Pol’y 157 (2003) (studying community innovation among users of sports equipment).
Technological shifts, especially the increasing importance of software as a component of technology and of computers as means for facilitating collaboration, suggest that the contribution of these non-traditional paradigms is likely to grow.\(^\text{113}\)

Where user, open, and collaborative innovation predominate, a number of basic assumptions of patent doctrine are undercut.\(^\text{114}\) Incentives to invent, disclose, and disseminate technology may be provided by use, by reciprocal exchange, or by other non-patent mechanisms, decreasing the importance of patent incentives and correspondingly tilting the cost-benefit balance away from exclusivity. Such approaches sometime target markets under-served by or outside of the scope of the markets that are important to the patentee, thus decreasing the impact of infringement on the patentee’s profits and increasing the potential positive social externalities of unauthorized use. Moreover, user, open, and collaborative innovations are often either unpatentable because of issues of inventorship due to their incremental and emergent origins or unpatented because their inventors do not wish to patent them or lack the funds to do so. Because these innovations are not patent protected, the blocking patent doctrine -- patent law’s mechanism for balancing rights between initial and follow-on inventors -- breaks down.\(^\text{115}\)

2. The Declining Relevance of Patent Exhaustion and the Repair/Reconstruction Distinction

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\(^{114}\) Ex ante licensing approaches, such as the General Public License (“GPL”) often used in open source software, are of only limited use in the patent context, since infringers need not be copiers and thus need have no pre-existing relationship with a patentee in order to infringe. For an extensive recent discussion of the GPL, see Greg R. Vetter, Commercial Free and Open Source Software: Knowledge Production, Hybrid Appropriability, and Patents, 77 Fordham L. Rev. 2087 (2009).
Under the traditional seller innovator paradigm, the doctrines of patent exhaustion (corresponding to copyright’s “first sale” doctrine\(^1\) and repair/reconstruction\(^2\) provided significant protection for consumers against liability for patent infringement while making ordinary use and repair of their purchases. The protection provided by these doctrines is shrinking, however.

First, the position of users of patented products and processes has shifted drastically due to the increasing dominance of software and business method claims. More and more often, ordinary consumers find themselves in the position, not of purchasers of products about which patent rights have been exhausted, but of users of patented processes or “systems” to which patent exhaustion may not apply.\(^3\) For example, ordinary consumers use most software products as licensees. These licenses may contain both copyright- and patent-based limitations.

While in most situations to date commercial entities mediate consumers’ access to patented technology and provide any necessary licenses, those same licenses often purport to restrict significantly what purchasers can do with the technology.\(^4\) While the Supreme Court in *Quanta Computer, Inc. v. LG Elecs., Inc.*, reaffirmed the doctrine of patent exhaustion, the Court


\(^2\) Chisum on Patents, 16.03[3]

\(^3\) The Supreme Court held in *Quanta Computer, Inc. v. LG Elecs., Inc.*, 533 U.S. 617 (2008), that method patents may be exhausted by the sale of an item that “substantially embodies” the method. The scope of situations in which exhaustion applies to methods is not at all clear, however. The district court in *Katz Interactive Call Processing Patent Litig. v. DirecTV Group, Inc.*, 2009 U.S. Dist. LEXIS 72134 (C.D. Cal. May 1, 2009), determined that exhaustion applied to sale of a service, for example, but the question was one of first impression and similar questions have not yet been addressed by other courts.

specifically declined to address what limits (if any) apply to adhesion contract restrictions on consumer use.\textsuperscript{120} Lower courts have generally enforced such restrictions.\textsuperscript{121}

Moreover, patents are increasingly likely to cover things that users and small entrepreneurs can do and make for themselves, without a manufacturer or other commercial intermediary.\textsuperscript{122} These types of actors generally have neither the sophistication nor the funds to engage in patent clearance searches (indeed, many have argued that even sophisticated players cannot effectively clear patent rights in the software and business method arenas\textsuperscript{123}) or the wherewithal to engage effectively in case-by-case licensing transactions even if they do learn of a potentially relevant patent.

Similarly, in the past, the repair/reconstruction doctrine generally protected consumers when they engaged in intuitively reasonable manipulations of their patented purchases. Thus, in the “old” days, consumers found it unreasonable to be precluded from repairing things they purchased, even if those items were patented. Patent doctrine recognized this expectation as legitimate.\textsuperscript{124} Reconstruction of patented inventions, however, was much more likely to be the province of commercial players.\textsuperscript{125} The repair/reconstruction doctrine evolved to separate these two types of behavior, broadly privileging repair, even when it involved using after-market parts, while counting wholesale reconstruction of patented products as infringement (and thus protecting patentees from attempts by competitors to undermine patent exclusivity through the

\textsuperscript{120} Quanta, 533 U.S. at n. 7. See also McFarling v. Monsanto Co., 545 U.S. 1139 (2005), denying cert in Monsanto Co. v. McFarling, 363 F.3d 1336 (Fed. Cir. 2004), which enforced a contractual restriction on use of second generation patented seeds.
\textsuperscript{121} See discussion of the case law in Zain, supra note 119.
\textsuperscript{122} This is the case for business method and software patents and increasingly may be the case for tangible goods as technology for “mass customization” through “toolkits” and for “3D printing” improves. See e.g., Eric von Hippel, Perspective: User Toolkits for Innovation, 18 J. Prod. Innovation Mgmt., 247 (2001); Simon Bradshaw et al., The Intellectual Property Implications of Low-Cost 3D Printing, 7 Scripted 5 (2010) (discussing the issue in the context of UK law).
\textsuperscript{123} Bessen & Meurer, supra note 19; Burk & Lemley, supra note 2.
\textsuperscript{124} Chisum on Patents, 16.03[3].
\textsuperscript{125} Id.
sale of “parts”). Nowadays, in contrast, consumers are increasingly “prosumers,” who expect to interact with the products they purchase in creative and innovative ways. The applicability of the repair/reconstruction distinction either to the increasing number of products that are licensed rather than purchased or to significant consumer customization is unclear at best.

3. Breakdown of Patent Notice and Search

Much has been written lately about the breakdown of the patent notice function in certain technological areas. As discussed in detail by Bessen and Meurer, this breakdown is due in part to inherent difficulties in describing software and business method inventions, in part to low standards for enablement and description in these areas, which permit broad and vaguely bounded claims, and in part to the unpredictability of claim construction, which can lead to patent coverage of inventions that were completely unforeseeable at the time of patenting.

The import of these problems is to increase the cost of patent search and decrease its effectiveness (to the point where, in software for instance, even sophisticated commercial players reportedly often opt out of patent clearance and hope for the best).

Patent search problems will be even greater for those engaged in the new innovation paradigms. Consumer innovators lack the sophistication and funds to embark on searches.

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126 Id.
127 The term “prosumer” has taken on a variety of meanings. Here I adopt the meaning originated by Alvin Toffler, who coined the term in 1980, Alvin Toffler, The Third Wave (1980), and discussed in a recent book co-authored with his wife. Alvin Toffler and Heidi Toffler, Revolutionary Wealth (2006) (prosumer is “One who create goods, services or experiences for his own satisfaction, rather than for sale or exchange.”) The Tofflers’ predictions of “revolutionary wealth” are sadly pre-2008, but their predictions of a rise in “prosumption” are reflected in widespread Web 2.0 phenomena and perhaps in an incipient wave of mass customization of tangible goods. See also, e.g., Michael Weinberg, It Will Be Awesome If They Don’t Screw It Up: 3d Printing, Intellectual Property, and the Fight over the Next Great Disruptive Technology (Public Knowledge White Paper, November 2010), available at http://www.publicknowledge.org/it-will-be-awesome-if-they-dont-screw-it-up (describing the emerging technology of 3D printing and its potential to empower users to customize and create products).
128 See Bessen & Meurer, supra note 19.
129 Lemley, Ignoring Patents, supra note 59.
Moreover, emergent innovations such as open source software lack a central “blueprint” which even could be compared with patent claims.\textsuperscript{130}

4. The Importance of Independent Invention

Though copying has never been a requirement of patent infringement (as it is for copyright infringement), much of traditional patent doctrine and rhetoric assumes implicitly that infringers are generally copyists.\textsuperscript{131} While independent, nearly simultaneous invention has undoubtedly always been common, the extent to which infringement suits involve independent inventors as defendants is newly recognized and probably increasing as a result of the patent notice problems described in the previous section. Empirical studies at least suggest that a large fraction of accused infringers, if not most, are independent inventors (or at least are not copyists).\textsuperscript{132}

Independent invention (at least if it is close to the time of patenting) diminishes the force of the free rider justification for patenting, suggesting that the patent incentive may not have been needed to induce a given invention.\textsuperscript{133} Even if we need the prospect of a patent to induce a race to produce a particular innovation, economic arguments suggest that there is no need for a winner-take-all regime.\textsuperscript{134}

\textsuperscript{130} While most open source software projects seem to have some kind of hierarchical structure for vetting “official” versions, see Weber, supra note 108, it seems unlikely, at least for a complex piece of software such as an operating system, that even the vetters have a complete view of the detailed implementation of algorithms in the various modules and all of their interactions. Moreover, one of the values of open source software is its customizability by users. Customizers are even less likely to be able to perform a proper patent clearing search.


\textsuperscript{132} See, e.g., Christopher A. Cotropia and Mark A. Lemley, Copying in Patent Law, 87 N.C. L. Rev. 1421 (2009).

\textsuperscript{133} For this reason, nearly simultaneous invention is sometimes treated as a “secondary consideration” suggesting obviousness. See Chisum on Patents 5.05[7].

Moreover, fairness concerns weigh against imposing infringement liability on independent inventors; those concerns are enhanced when the preferred alternative – patent search – is expensive or infeasible. For all of these reasons, commentators have increasingly suggested either an independent inventor defense or other means to decrease the burden of patent liability for independent inventors.\textsuperscript{135}

One justification for nonetheless deeming independent inventors to be infringers relies on the idea that duplicative research is wasteful, a justification which is at least controversial.\textsuperscript{136} Moreover, this justification makes sense only if the patent notice function is effective so that search costs are not too high. This does not seem to be the case in many arenas, as just discussed.

Another justification for holding independent inventors liable for infringement applies to those who keep their inventions as trade secrets. Potential infringement liability might induce some inventors to opt for patenting rather than trade secrecy.\textsuperscript{137} It is not at all clear that trade secrecy is worse for society than patenting in situations where independent invention occurs, however. Independent inventors operating in secret are still presumably in competition with one another (at least if they are commercial inventors), so the public gets the benefit of lower prices, even if disclosure is delayed. Moreover, only one of these inventors need make the choice to freely reveal the invention to undermine the secrecy of the others. In any event, prior user


\textsuperscript{137} This theory is reflected in patent case law, which treats an inventor’s own trade secret exploitation of an invention as “public use”, but allows patenting in the face of a third party’s secret use. See, e.g., W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1550 (Fed. Cir. 1983) (“Early public disclosure is a linchpin of the patent system. As between a prior inventor who benefits from a process by selling its product but suppresses, conceals, or otherwise keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter.”)
defenses, which excuse infringement by independent inventors who do not make it to the patent office first, are common in other patent systems. The United States has implemented such a defense in the business method patent arena without apparent ill effect.

5. Mass Customization and the Separation Between Manufacture and Design

Much has been made in the copyright literature about the changing structure of the entertainment industry, from a system of centralized production aimed at mass markets to an increasingly decentralized and individualized marketplace, in which users play important roles in disseminating and creating content. Similar changes in the production of goods are under discussion in the management literature, but have been little noted in the legal literature.

Just as computer technology and the Internet have lessened (or even undermined) the need for identical mass-produced entertainment products, the increasing role of computerized design, manufacture, and operation with respect to tangible goods makes it easier to customize products and to design user-friendly “toolkits” for customization. The line between user and manufacturer is beginning to blur. Moreover, some experts predict an increasing availability of custom fabrication plants and even of home equipment for “3D printing,” which will even more

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138 See Christopher Garrison, Exceptions to Patent Rights in Developing Countries, International Centre for Trade and Sustainable Development, Issue Paper No. 17 (October 2006) at 5-6, 49-50 (discussing prior user rights in various countries).
141 See, e.g., von Hippel, Democratizing Innovation, supra note Error! Bookmark not defined.
significantly blur the distinction between user and manufacturer and between designing and producing tangible goods. 143 If these predictions are realized, not only will consumers be more able to design their own products, but also there will likely be a growing number of “designer innovator” entrepreneurs who, rather than contracting with a manufacturer to produce products using their designs, will seek to market designs directly to consumers. Patents may or may not play an important role in such new business models. 144 In this brave new world, ordinary consumers may be able to make more extensive modifications of patented technology than was possible with earlier tangible goods. They may also be more likely to stumble upon patented technology through independent invention, to be able to make copies of patented technology for their own use, and to be “innocent purchasers” of infringing technology made by others. All of these developments taken together mean that it will become more and more likely that small entities (consumers or “designer innovators”), for whom the transaction costs involved in clearing patent rights would be prohibitive, will be patent infringers not protected by patent exhaustion or the repair/reconstruction doctrine.

III. EXISTING EX POST DOCTRINES AND RECENT PROPOSALS

While there is no general defense to patent infringement analogous to copyright’s fair use doctrine, there are, as already discussed in passing, various ex post doctrines in patent law that seek to address the issues of transaction failures, the balance between initial and follow-on innovators, and the potential that overriding societal costs may outweigh the benefits of patenting. These doctrines are inadequate to the task of serving as effective policy levers for

143 See, e.g., Eric von Hippel, Perspective: User Toolkits for Innovation, 18 J. Prod. Innovation Mgmt., 247 (2001); Simon Bradshaw et al., The Intellectual Property Implications of Low-Cost 3D Printing, 7 Scripted 5 (2010) (discussing the issue in the context of UK law). See also, Public Knowledge White Paper, supra note __ at 2 (“The machines can download plans for a wrench from the Internet and print out a real, working wrench. Users design their own jewelry, gears, brackets, and toys with a computer program, and use their machines to create real jewelry, gears, brackets, and toys.”)

144 This issue is worthy of more extensive consideration, which I do not attempt here.
various reasons. As discussed above, some, such as the experimental use exemption\(^{145}\) and prior
user defense for business methods,\(^{146}\) are too narrowly targeted or interpreted to serve the
purpose. Others, such as the reverse doctrine of equivalents\(^{147}\) and patent misuse,\(^{148}\) are never or
increasingly rarely applied. Still others, such as the doctrines of patent exhaustion and
repair/reconstruction, are no longer adequate in light of social and technical changes.\(^{149}\) The
most recent addition to the list – the discretion given to district court judges as a result of the
Supreme Court’s *eBay v. MercExchange* decision – is promising but at least to date inadequately
tailored to the innovation issues motivating the patent system.\(^{150}\)

In light of the slim ex post options available under existing law, commentators have made
a number of suggestions for reform. These suggestions fall primarily into two categories:
proposals to beef up existing doctrines and proposals to deal with independent invention.

A. Proposals to Beef Up Existing Doctrines

A number of scholars (including this one) have argued for a more expansive research exemption,
while others have disputed the wisdom of such an exemption.\(^{151}\) The Supreme Court has in fact
taken an expansive approach to the statutory exemption for experimentation related to FDA
approval.\(^{152}\) While I continue to believe an expansive research exemption is a good idea, there
are limits to what a piecemeal approach can accomplish (particularly if implemented by statute).


\(^{146}\) See discussion, supra, at __. See also Burk & Lemley, supra note 2.

\(^{147}\) See discussion, supra, at __. See also Burk & Lemley, supra note 2.

\(^{148}\) See discussion, supra, at __. See also Burk & Lemley, supra note 2.

\(^{149}\) See discussion, supra, at __.

\(^{150}\) See discussion, supra, at __.

\(^{151}\) For reviews of the literatures see Joshua D. Sarnoff and Christopher M. Holman, Recent Developments Affecting the Enforcement, Procurement, and Licensing of Research Tool Patents, 23 Berkeley Tech. L.J. 1299 (2008) (relating to research tools); Strandburg, supra note 7 (relating to both common law and statutory exemptions).

\(^{152}\) See *e.g.*, Merck KGaA v. Integra Lifesciences I, Ltd., 125 S. Ct. 2372 (2005); Eli Lilly & Co. v. Medtronic, Inc., 496 U.S. 661 (1990).
For example, I have argued elsewhere that a business method use exemption would be justified by arguments based on user innovation very similar to those I offered for expanding the research exemption. Despite the similar justifications, these proposals raise entirely separate questions under existing law. Similarly, the statutory exemption from imposition of remedies (but not from infringement liability) for a medical practitioner’s “performance of a medical or surgical procedure on a body” is ill-equipped to deal with issues raised by the outsourcing of diagnostic testing to independent laboratories, despite the fact that similar questions about doctors as user innovators and the importance of non-commercial motivations arise. If we can identify common factors underlying various scenarios in which an infringement exemption would be desirable it is sensible to consider the merits of a more general fair-use-like doctrine.

The reverse doctrine of equivalents is, of course, a general approach and several authors (including Burk and Lemley in the book that is the impetus for this symposium) have suggested revitalizing it. The doctrine, which the Federal Circuit recently described as “rarely invoked and virtually never sustained,” might in principle have the potential to play a role similar to the role that “transformative use” plays in copyright’s fair use doctrine. It could be employed to deal with “blocking patent failure,” in which bargaining between initial and follow-on inventors with overlapping patent rights breaks down or there is independent invention of a significant advance over a patented technology.

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153 Strandburg, supra note 81.
154 35 USC 287(c)
158 See Samuelson, supra note 5.
The reverse doctrine of equivalents is unlikely to rise to the occasion, however. The doctrine applies, according to the Supreme Court, “where a device is so far changed in principle from a patented article that it performs the same or similar function in a substantially different way, but nevertheless falls within the literal words of the claim.”\(^{159}\) Simply reading this description within the context of modern patent law is enough to explain why the defense is never successful. It has the ring of a remnant of a historical central claiming regime in which it made sense to invoke the “principle” of an invention.\(^{160}\) In its current form it makes little sense in a peripheral claiming regime. Moreover, the doctrine is described in terms that are unmoored from any innovation policy goal and will certainly seem obscure to any jury tasked with applying it (the “unreversed” doctrine of equivalents is bad enough in that respect).\(^{161}\)

Finally, depending on how an expanded reverse doctrine of equivalents was defined, even a beefed up form of this defense could be substantially under and over inclusive: Why apply it only when the accused infringing product or process “performs the same or similar function” or when there is a “fundamental change in the basic principle by which the device operates”?\(^{162}\) And do we really want to exempt infringement even in cases in which the infringer copied and there was no reason to expect bargaining breakdown? Suppose, for example, that the initial patentee offers a standard non-exclusive license to all comers. These cases may warrant exemption if the new invention is a big enough advance, but, in its present form, the reverse doctrine of equivalents does not account for these factors at all.


\(^{160}\) Burk & Lemley, supra note 21 at 1773-74 (describing how the reverse doctrine of equivalents originated in a central claiming regime).


\(^{162}\) Depuy Spine, 567 F.3d at 1338.
In sum, while the impetus to revive the reverse doctrine of equivalents is a sound one, accounting for the size of an improvement in a multi-factored fair-use-type test is likely both to reflect the underlying policy goals more accurately and to be more palatable to decision makers. Similar problems arise when considering the potential for patent misuse to play an important role as an ex post policy lever, as Burk and Lemley acknowledge.\textsuperscript{163}

B. Proposals to Deal with Independent Invention

A number of legal commentators have proposed exempting independent inventors from infringement liability.\textsuperscript{164} As discussed above, there are several policy reasons to favor such a proposal, given the importance of independent invention and the growing difficulty, at least in some technological arenas, of performing cost-effective patent clearances.

In a response to a thoughtful analysis and proposal by Samson Vermont,\textsuperscript{165} however, Mark Lemley has argued that an independent inventor defense might be very strong medicine indeed, given the historical prevalence of nearly simultaneous invention.\textsuperscript{166} Though this is not necessarily reason not to enact such a defense (if the defense is warranted, the prevalence of independent invention also suggests a very large social payoff from enacting it), it does give one pause. Moreover, as Lemley also argues, there may be special concerns about an independent inventor defense in particular arenas (Lemley mentions pharmaceuticals) involving high costs and high expected payoffs.\textsuperscript{167} Lemley suggests four approaches, short of an independent invention defense, to address some of the problems posed by infringement liability for

\textsuperscript{163} Supra note 2.
\textsuperscript{164} See, e.g., references supra note 134.
\textsuperscript{165} Vermont, supra note 134.
\textsuperscript{166} Lemley, supra note 134 at 1528.
\textsuperscript{167} Lemley, supra note 134 at 1529. He also argues that an independent inventor defense might make it more difficult to have a workable market for patent rights. Id. at 1531-32. This argument applies to virtually any ex post policy lever. However, like Vermont in his reply to Lemley’s critique, supra note 134 at 1539-40, I think this argument is not particularly strong, given the many degrees of uncertainty already plaguing the definition of patent rights. Moreover, if the copyright context is at all analogous, it gives cause for hope since the market for copyrighted works seems to have survived the ex ante uncertainties of the fair use defense.
independent inventors: i) requiring copying as an element of willful infringement; ii) expanding prior user rights beyond business methods; iii) using nearly simultaneous invention as a secondary indication of obviousness; and iv) taking account of independent invention in evaluating whether to award injunctive relief.\textsuperscript{168}

These are all sensible suggestions for stopping short of a bright line independent inventor defense. Incorporating the questions of copying and independent invention into a fair-use-like exemption from infringement liability similarly would add flexibility and be less drastic than an across-the-board independent invention defense (and, if fair use can be accompanied by an obligation to pay royalties, might be very similar indeed to the suggestion regarding injunctive relief). A fair-use-type exemption has at least two types of advantages over Lemley’s proposals.

First, rather than simply scaling back liability when there is independent invention, it permits courts to tailor the exemption in light of the technology involved and other relevant factors. Second, and I think importantly, a fair-use-type defense could handle a point that is not much discussed in the independent invention analyses. The world of potential infringers is not simply divided into copyists and independent inventors. There are degrees of copying and independent invention. There are those who copy from an unmarked (but patented) product and those who copy slavishly from the patent itself. There are those who are “inspired” by the patent, but produce radical improvements. There are independent inventors who willfully turn their eyes away from clearly relevant patent literature and those who would have to make large investments to determine whether they are infringing another’s patent. Further, there is a whole gray area of other potential infringers: those who copy from an independent inventor, those who copy from a copyist, and so forth. Taking copying and independent invention into account as factors in a fair-use-type analysis permits a more nuanced (and less difficult to implement)

\textsuperscript{168} Lemley, supra note 134 at1532-35.
response to these various factual scenarios, providing policy levers that can take into account differences between technologies and other contextual factors.

IV. PATENT FAIR USE 2.0: A PROPOSAL

Given the reasons to favor a fair-use-like patent infringement exemption, what should it look like? As with copyright’s fair use, there is a tension between providing flexibility and giving patentees, potential fair users, and courts sufficient clarity of implementation. While O’Rourke’s proposal is an excellent jumping-off point, I have argued elsewhere that it may be quite difficult for courts to implement.\(^{169}\) In particular, factors iii) ("the nature and strength of the market failure that prevents a license from being concluded") and iv) ("the impact of the use on the patentee’s incentives and overall social welfare")\(^ {170}\) are little more than directions to grant fair use where it would be socially desirable to do so. Necessarily, O’Rourke’s proposal also fails to incorporate factors whose relevance has only become apparent during the past ten years. Can we do better? Though it is an inherently difficult task, I think so. In particular, developments over the past ten years may allow us to be more specific about some of the factors that should be considered.

To come up with a list of relevant factors, it is helpful to back up and categorize the circumstances under which exemption from infringement may be appropriate. Because of the strength of the arguments for exempting independent inventors from liability, I begin by dividing the analysis between factors that should be relevant whether or not the infringer has copied from the patentee and factors that are relevant only when there is no copying. This is also a useful division because the analogy to copyright fair use is most relevant in situations involving copying. Since independent inventors (and others who have not copied from the patentee) have a

\(^{169}\) See Strandburg, supra note 77.

\(^{170}\) O’Rourke, supra note 8 at 1206-07.
stronger case for exemption than copyists do, any factors that might weigh in favor of exempting a copyist should weigh in favor of exempting an independent inventor as well. The next section discusses such factors. After considering factors that would be relevant even when there has been copying, I turn to consider factors that will be relevant only when an alleged infringer has not copied from the patentee.

A. Fair Use Even for Knowing Copyists

There are three types of analytically distinct (though possibly overlapping) situations in which an infringement exemption might be socially desirable even when an infringer has copied from the patentee. First, there are situations involving excusable licensing failure. Second, there are situations involving large improvements (analogous to “transformative uses” in copyright fair use). Third, there are situations in which patent incentives are not needed (or, more precisely, where the boost to invention resulting from patent incentives is not worth the tradeoff in exclusivity). Each type of situation suggests factors to consider in a fair-use-type approach.

1. Excusable Licensing Failures

The category of excusable licensing failures has a large overlap with the types of concerns motivating at least some understandings of copyright fair use.171 Three sub-categories are useful in the analysis: under-served markets, what O’Rourke calls “anti-patent” refusals to license,172 and “anticommons”-type hold-up in relation to complex products or processes.173

a. Under-Served Markets

Under-served markets can arise either because potential users are unable to pay the patented price or because the transaction costs of licensing exceed the value of use. The most

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171 See Wendy J. Gordon, Fair Use as Market Failure, A Structural and Economic Analysis of the Betamax Case and Its Predecessors, 82 Colum. L. Rev. 1600, 1601-02 (1982).
172 O’Rourke, supra note 8 at 1199.
173 See Heller & Eisenberg, supra note 25.
noted example of under-served markets in patent law involves patented pharmaceuticals.\textsuperscript{174} It is evident that there are large numbers of individuals in developing countries who would benefit from life-saving drugs yet are unable to pay the going rate. Arguably, generic companies could manufacture and sell inexpensive drugs to these under-served markets without undercutting the pharmaceutical companies’ profits from patented medicines in developed countries. In considering whether a fair use exemption should apply, courts should look for situations involving high social value and low ability to pay. In some cases the distinction between commercial and non-commercial use is a reasonable proxy for ability to pay (and would weigh in favor of exempting educational and non-profit research uses, for example).

The pharmaceutical example points up a dilemma often posed by the possibility of fair-use-type exemptions for under-served markets, however. While the social value of providing life-saving medicines to those who cannot afford them is extremely high, the potential for arbitrage – leakage of cheap goods back into the market for those who can pay – weighs against the benefit of providing lower-priced drugs only to those who cannot afford the going rate.\textsuperscript{175} If such gray market goods undermine drug inventors’ ability to recoup their investment, future innovation might be in danger. This possibility clearly must play a role in weighing whether to allow an exemption for the purpose of serving those who lack ability to pay.

In the pharmaceutical example, a generic manufacturer is needed to give those in developing countries access to the patented technology. In this respect it differs from the personal use paradigm which commonly dominates thinking about fair use as a response to

\textsuperscript{174} See, e.g., Kevin Outterson, Patent Buy-Outs for Global Disease Innovations for Law- and Middle-Income Countries, 32 Am. J. L. and Med. 159 (2006); Graham Dutfield, Delivering Drugs to the Poor: Will the TRIPS Amendment Help?, 34 Am. J. L. and Med. 107 (2008);

under-served markets in copyright. For personal use, the concern is less about ability to pay than about prohibitive transaction costs associated with licensing. Increasingly, as discussed above, consumers have the potential to infringe patents directly, without the mediation of a manufacturer. In situations where there is no easy way to purchase an embodiment or a standard license to a patented invention, transaction costs may make licensing ineffective. Such situations weigh in favor of a fair use exemption. Exempting personal use would even be in line with the Federal Circuit’s recent narrow reading of the experimental use exemption as extending to uses “for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry“ and could be quite effective in protecting user innovators whose customizations might stray beyond “repair” and into “reconstruction.”

Factors to consider in determining whether an exemption should be made for an under-served market should thus include whether the use was commercial or non-commercial, the likely danger to the patentee’s markets due to arbitrage, and the availability of low-transaction cost means to obtain embodiments of or licenses to the patented technology that would obviate the need for unauthorized activity.

b. “Anti-Patent” Refusals to License

In the copyright context, fair use is often employed to facilitate criticism, parody, and other uses of copyrighted material to which a copyright owner objects not out of a desire to control the market for the patented invention but out of a desire to suppress a socially desirable activity that might undermine (rather than compete in) the patentee’s market. These fair uses

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176 A similar concern does arise with respect to potential fair use of copyrighted textbooks in developing countries. Margaret Chon, Intellectual Property “From Below”: Copyright and Capability for Education, 40 U.C. Davis L. Rev. 803 (2007).


178 See, e.g., Samuelson, supra note 5; Gordon, supra note 171; O’Rourke, supra note 8 at 1207.
often implicate First Amendment concerns which generally are not salient in the patent context. Nonetheless, similar concerns underlie arguments for a research exemption applied to “experimenting on” a patented invention to understand, design around, or improve upon it. O’Rourke also identifies refusals to permit reverse engineering to develop compatible products as similarly intended to subvert the limitations of the patent right by extending a patentee’s control to markets for complementary goods. Refusals to license substantial improvements as a means to hold up the improver for higher royalties also fit into a category of “anti-patent” refusals to license.

c. Hold-up Due to “Anticommons”-Type Issues

As O’Rourke and many others have pointed out, patent licensing may fail because of “anticommons” issues, in which negotiations over licensing are complicated by a need to assemble large number of licenses to produce a particular product or implement a particular process. At the time of O’Rourke’s writing, concern about the anticommons problem focused on biotechnology and gene patenting. In the past ten years, however, it has become evident that major anticommons issues arise in the information technology arena. While these issues can sometimes be resolved by forming patent pools (in which a number of industry players are granted cross-licenses to one another’s patented technology), patent pools are actually rather

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179 See, e.g., Samuelson, supra note 5 at 2546-2568.
180 See, e.g., Eisenberg, supra note 77; Strandburg, supra note 77.
181 O’Rourke, supra note 8 at 1227-30.
182 Id. at 1179-80. See also, e.g., Heller and Eisenberg, supra note 25; Mark A. Lemley and Carl Shapiro, Patent Holdup and Royalty Stacking, 85 Tex. L. Rev. 1991 (2007).
183 Heller and Eisenberg, supra note 25
184 See, e.g., Lemley and Shapiro, supra note 182; Sapna Kumar and Arti Rai, 85 Tex. L. Rev. 1745, 1756-57 (2007)
Moreover, these problems are exacerbated where, as is often the case in the information technology sector, some patents are held by non-practicing entities that have no interest in cross-licensing.\(^{187}\)

At least some Supreme Court justices recognized this issue when deciding the *EBay* case, discussed above.\(^{188}\) While the factors set out in *EBay* to guide courts’ discretion in awarding injunctive are not tailored to innovation concerns, courts have in fact employed them to deny injunctions and impose ongoing royalties primarily in cases involving non-practicing entities, as discussed by Burk and Lemley.\(^{189}\)

Though *EBay v. MercExchange* has alleviated concerns about hold-up from “patent trolls,” the danger that courts may not have their eyes on innovation policy and may simply turn the “injunction always” rule into a “no injunctions for non-practicing entities” rule remains.

Thus, for example, whether the infringer is a copyist or an independent inventor and the extent of the inventive contributions of patentee and infringer arguably should play a role in determining whether injunctive relief is warranted and whether a royalty should be imposed in a potential anticommons scenario. An independent inventor will be particularly subject to hold-up if he or she has made a substantial investment in producing a complex product incorporating a patented invention. Such an inventor may have been unable, as a practical matter, to have negotiated a license before making the investment. Conversely, a company that knowingly copies highly innovative technology from a non-practicing entity is probably not a victim of licensing failure.

These considerations might be squeezed into the “balance of hardships” and “public interest”


\(^{187}\) See, e.g., Lemley & Shapiro, supra note 182 at 2015.

\(^{188}\) 547 U.S. at 395-97 (Kennedy, J., concurring).

\(^{189}\) Burk & Lemley, supra note 2. See also, Streur, supra note 87, at 67.
prongs of the eBay analysis, but a fair-use-type analysis would accommodate innovation-related concerns much more cleanly.

2. Substantial Improvements

Copyright fair use doctrine relies heavily on the extent to which a particular use is "transformative." The motivation behind this reliance is the intuition that the public should not be deprived of a major advance because the initial author refuses to "play along." The argument is similar in the patent law context and is the basis for the reverse doctrine of equivalents already discussed at length. In the patent context, the evaluation of the substantiality of the improvement should also take into account the size of the technological contribution of the initial innovator. It is longstanding patent doctrine that a “pioneer” inventor should be afforded a broad scope of equivalents in assessing infringement. That doctrine, like the reverse doctrine of equivalents, had its roots in central claiming and is somewhat difficult to apply under the present peripheral claiming system. It can be quite sensibly taken into account in a fair-use-type analysis, however, where the relative sizes of the initial invention and improvement are relevant to how the returns from the invention should be divided and indicative of whether there is likely to be a hold-up problem or licensing breakdown.

There is one major difference between patent law and copyright law that would seem to obviate the need for a fair-use-type exemption for improvers except in the most extreme circumstances (where one might suspect a bargaining breakdown due to holdup). Unlike authors (who are not permitted ex ante to obtain copyright in unauthorized transformative works), improvers on patented technology can proceed without authorization and are specifically

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190 547 U.S. at 393-94.
191 See, e.g., Samuelson, supra note 5 at 2619.
192 See, e.g., Burk & Lemley, supra note 21 at 1772-73, n. 13.
193 Id.
permitted to obtain patents on their improvements.195 This “blocking patent” doctrine is assumed to result in the salutary situation in which it is in both parties’ interests to come to terms, cross license their patents, and proceed to make use of the improved technology.196 The expectation that this will ordinarily occur is probably behind the present, rather dusty, status of the reverse doctrine of equivalents.197 Unless there is some reason to think that initial and follow-on inventors cannot come to terms, why confer a fair use defense on the improver? Thus, a likelihood of “blocking patent failure” would strongly increase the force of an argument for an exemption for a substantial improver.

While O’Rourke argues that fair use analysis should consider the possibility of blocking patent failure due to difficulties of valuation, especially where there is potential for hold-up due to large disparities in the values of the contributions made by initial and follow-on inventors,198 recent developments provide much stronger reasons to anticipate that the blocking patent doctrine may not be sufficient to protect the substantial improver. First, the blocking patent doctrine assumes that the improver is able and willing to patent the improvement. As discussed above, this may not be the case for many of those involved in new innovation paradigms. User innovators may not have the resources to patent their improvements or may belong to communities in which free revealing rather than patenting is the norm.199 Open source software developers may have non-pecuniary motivations that preclude (and would be dampened by) applying for patents.200 In many cases in which a widespread group of contributors undertakes

196 See discussion, supra.
197 See discussion, supra.
198 O’Rourke, supra note 8 at 1204.
199 See sources supra note 112.
highly cumulative innovation, patent protection is simply unavailable either in principle or as a practical matter.

If patenting is inconsistent with the innovation paradigm that produces the improvement, the blocking patent doctrine breaks down. Assuming the improvement is disclosed, as it often will be under new innovation paradigms, the initial inventor can freely use the improvement, while retaining the right to sue the improver for patent infringement. In such circumstances, the initial inventor has no reason to come to terms – even if the improvement is a major advance. Fair use for the improver may be a socially desirable means to solve this breakdown.

Second, the blocking patent doctrine is less effective where the “improver” is an independent inventor and/or the initial inventor is a non-practicing entity. Having invested heavily in marketing a product or using a process that is only later determined to infringe an earlier patent, the substantial improver may be subject to holdup issues similar to those discussed in section 1.c above. Additionally, if the initial patentee is not locked by upfront investment into using the improvement (or never intends to practice either patent), the improver again may be subject to holdup.

3. Alternative Innovation Paradigms

As I have argued elsewhere in the context of user innovation, the availability of non-patent-motivated innovation paradigms for a particular technology weakens the argument for patent exclusivity because it changes the cost-benefit tradeoffs. Thus, if user innovation (or some other non-patent-based paradigm) predominates either in a particular case or in the field of the invention that fact should weigh in favor of an infringement exemption. The extent to which an exemption should be favored also depends on the extent to which the alternative innovation paradigm leads to disclosure and dissemination of inventions. Open source software, for

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201 Strandburg, Users as Innovators, supra note 30.
example, is non-patent-motivated, widely disclosed, and widely disseminated. The prevalence of open source approaches in a particular technological area weighs in favor of an infringement exemption. User innovation is frequently non-patent-motivated, but whether it is widely disclosed and disseminated will depend on whether the invention is self-disclosing or could be kept as a trade secret, whether it can be easily “picked up” by other users once disclosed, whether there are norms of free revealing among a particular group of users and so forth. In a fair-use-type approach, the availability and nature of alternative innovation paradigms should factor into determining whether an infringement exemption is appropriate.

B. Fair Use For Independent Inventors, Other Non-Copyists, and “Innocent” Copyists

When an accused infringer is an independent inventor or other non-copyist, there are additional factors that could weigh in favor of an infringement exemption. First, as already discussed, the fact of independent invention itself weighs in favor of an exemption. As noted, however, non-copyists are not all alike and neither are copyists. To avoid some of the potential for over-reaching of a strict independent inventor defense (and to deal with other non-copyists and with “innocent” copyists who copy without knowledge of the patent), one should consider the circumstances of any infringement that occurs without knowledge of the patent.

Besides considering whether the infringer is an independent inventor, it is also sensible to consider to what extent the infringer’s ignorance of the patent was reasonable under the circumstances. Relevant circumstances would include patent search costs (which will depend upon the technological area, as discussed above), custom within a particular industry (which may be evidence of search costs or of norms of reciprocal forbearance), the extent to which the infringer should have been able to foresee the possibility of infringing the patent at issue (which may be related to the fuzziness of claim boundaries) and the extent to which a particular infringer

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202 See discussion, supra.
could reasonably be expected to have the sophistication and funds to undertake the necessary
patent search (which may be related to whether the infringer is a commercial or nonprofit entity
or a small entity or individual). Consideration of context is important to avoid encouraging
“head in the sand” behavior by potential infringers and to determine whether an infringement
exemption is appropriate for those who are neither knowing copyists nor true independent
inventors.

C. Summary of Patent Fair Use 2.0 Proposal

The above analysis leads to the following proposed factors for courts to consider in
determining whether to award an infringement exemption (or alternatively to refrain from
 awarding an injunction and impose an ongoing royalty):

1) Is there a justifiable failure to purchase or license due to:

   a. The social value of making the invention available to a market that the
      patentee will not be able to serve, such as those who are unable to pay or those
      for whom the transaction costs of licensing are prohibitive (taking into
      account the potential damage to the patentee’s interests by arbitrage);

   b. An “anti-patent” license failure due to the patentee’s attempt to squelch
      further innovation or to exert control over markets beyond the scope of the
      claims; or

   c. A failure to license due to anticommons-type hold-up?

2) Did the infringer make a substantial improvement over the patentee’s invention and
   was there some reason for blocking patent failure?

3) Does the availability of alternative innovation paradigms in the technological arena
   provide evidence of reduced importance of patent incentives?
4) Was the infringer a knowing copyist, independent inventor, or something in between?

If the infringer was not a knowing copyist was her failure to locate the patent through

search reasonable in light of patent search costs in the particular technology, custom

in the industry, the foreseeability of infringement, and the infringer’s commercial,

non-commercial, or small entity status?

D. Applications

To breathe some life into the proposed fair use 2.0 analysis, this section briefly discusses

two possible applications: open source software and essential medicines.

1. Open Source Software

There has been considerable concern about the vulnerability of open source software to

patent infringement liability, which could arise either as a result of independent invention or

because one of one of a myriad of widely distributed contributors inserts infringing code into an

open source project. Under current law, there is no likely defense to such a claim and while

the eBay v. MercExchange approach might undercut a request for injunctive relief from a non-

practicing entity, it is not at all clear that courts would refuse to enjoin an open source program if

a software company marketing a competing product were to sue. On the other hand, applying

the fair-use-type factors proposed here would exempt open source software in most cases, as

follows:

1) Is there a justifiable failure to purchase or license?

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J. Law & Tech. 1, 37 (2006) (raising this question and discussing it in the context of litigation in which SCO group
sued IBM, contending that Linux contained some lines of proprietary code); Greg Vetter, The Collaborative
Patent Implications to Open-Source Software Copyright Licensing, 19 Fed. Cir. B.J. 409 (2009-10) (discussing how
the GPL attempts to deal with patent issues); John Tsai, For Better or Worse: Introducing the GNU General Public

204 Though some have suggested that an infringement exemption for open source software be considered. See, e.g.,
Garrison, supra note 138.
This factor may not weigh strongly in favor of open source software that infringes patents held by companies marketing competing products, though the fact that open source software is available to everyone at no charge is somewhat favorable. Of course, in particular cases, this factor may have more weight.

2) Did the infringer make a substantial improvement over the patentee’s invention and was there some reason for blocking patent failure?

The analysis of this factor will depend upon the extent to which the open source software is innovative beyond the patentee’s claims. If there is a substantial improvement, this factor is strongly in favor of an exemption for the open source software since the inability of the open source community to patent its improvements leads to a complete blocking patent failure.

3) Does the availability of alternative innovation paradigms in the technological arena provide evidence of reduced importance of patent incentives?

This factor will generally weigh strongly in favor of exempting the open source software unless there is evidence that open source is not playing an important role in innovation in the particular arena.

4) Was the infringer a knowing copyist, independent inventor, or something in between? If the infringer was not a knowing copyist was her failure to locate the patent through search reasonable?

This factor will probably favor exemption since the open source community likely invented independently. Even if a contributor knowingly contributed patented code, it may be unreasonable to expect the core developers to police such infringement.\(^{205}\) Moreover, it would in most cases be unreasonable to expect participants in an emergent and modular innovation

\(^{205}\) The issues here would be comparable to those that arise in considering the liability of internet service providers for infringement, an issue dealt with in the copyright context by “safe harbor” provisions. 17 U.S.C. 512.
paradigm such as open source software to conduct patent searches and attempt patent clearance. As already discussed, the information technology arena is one in which even commercial players have found it prohibitively difficult to conduct patent searches.

The proposed fair use-type exemption thus would probably apply to most open source projects. Adopting such an exemption would therefore remove the shadow of potential infringement liability from such projects. Note, however, that the exemption would not be automatic. If an open source project blatantly and knowingly copied patented code, encouraged its contributors to ignore patents when making their contributions, and so forth, it would not be eligible for the exemption. The proposal thus has advantages over a bright line “open source” defense.206

2. Essential Medicines

The problem of access to medicine is hugely important in the international arena and has inspired a correspondingly vast literature.207 Here I do not attempt to engage that literature seriously. This analysis simply illustrates how the proposed factors would apply in the context of a domestic patent infringement case against a very low cost provider of essential medicines to those with very low incomes. I will assume in this discussion that the infringer is a nonprofit entity and consider whether there might be workable models for tailoring provision of essential medicines so as to qualify for a “patent fair use” exemption.

1) Is there a justifiable failure to purchase or license?

Where patients are in need of essential medicines and unable to afford them, there is a very strong social benefit to providing those medicines. The rub, of course, is the arbitrage problem,
in which medications supplied or produced for use by low income patients might be redirected "under the table" to higher income patients. Rather than simply assume in the abstract that gray market goods are a problem, an ex post fair-use-type analysis would permit a factual investigation of whether the institutional arrangements for providing a particular infringing drug were in fact creating a sizable opportunity for arbitrage. So, for example, if generic essential medications were administered at clinics operated by nonprofit entities with reasonably strict standards for patient income, rather than provided directly to patients for use at home, or were prepared in some way to differentiate them from brand name drugs so as to discourage corrupt behavior by the provider, these facts would weigh in favor of an exemption.

2) Did the infringer make a substantial improvement over the patentee’s invention and was there some reason for blocking patent failure?

This factor would not favor an exemption with respect to patented essential medicines in many circumstances, since the generic would often essentially duplicate the brand name drug. One could imagine cases where this factor might come into play, however. Suppose, for example, that a new use for a brand-name drug in treating an illness endemic to low-income patients was discovered by non-profit researchers or doctors treating low-income patients. The brand-name company would have had little incentive to develop such a new use, since there is little profit to be made from it. For the same reason, the blocking patent doctrine would be of little help in providing incentives for cross-licensing.

3) Does the availability of alternative innovation paradigms in the technological arena provide evidence of reduced importance of patent incentives?

This factor will generally weigh strongly against infringement exemptions in the pharmaceutical arena since pharmaceutical innovation is strongly dependent on very expensive private
investment, at least under the current regulatory system. This might conceivably change in the
future, since various experiments with “open source drug development” are underway.\(^{208}\)

However, the costs of clinical trials for approval of new drugs are likely to constrain the potential
for such open source approaches, at least within the United States.\(^{209}\) Once again, though, the
situation might be different at some point with respect to the development of new uses of
existing drugs.\(^{210}\)

4) Was the infringer a knowing copyist, independent inventor, or something in
between? If the infringer was not a knowing copyist was her failure to locate the
patent through search reasonable?

This factor will typically weigh against an exemption, since we are postulating the use of a
known, patented drug. At least with respect to patents on the chemical entity, search is generally
not a serious problem for pharmaceuticals.\(^{211}\)

The bottom line of such an analysis will probably favor the patentee most of the time.

But the analysis suggests room for creativity on the part of organizations seeking to serve those
who are unable to pay for essential medicines because the analysis is sensitive to the facts on the

\(^{208}\) See, e.g., Emily Marden, Health Care & Pharmaceuticals: Open Source Drug Development: A Path to More
(Reviewing projects and providing information and links for the expressed goal of “enabling innovation in the life
sciences”) (visited December 17, 2010).

\(^{209}\) See, e.g., Marden, supra note ___ at 234 (discussing the high costs of drug development). Some have also
proposed shifting responsibility for clinical trials away from the private sector, see, e.g., Amy Kapczynski,
Innovation Policy for a New Ear, 37 J.L. Med. & Ethics 264 (2009), T. R. Lewis, J. H. Reichman and A. D. So,
Baker, The Benefits and Savings of Publicly-Funded Clinical Trials of Prescription Drugs (2008), available at
<http://www.cepr.net/index.php/publications/reports/the-benefits-and-savings-of-publicly-funded-clinical-trials-of-
prescription-drugs/> (last visited April 16, 2009); A. Jayadev and J. Stiglitz, "Two Ideas to Increase Innovation
<http://content.healthaffairs.org/cgi/reprint/hlthaff.28.1.w165v1.pdf> (last visited April 24, 2009). Any major
changes in the regulatory paradigm could affect the viability of open and collaborative innovation approaches
to pharmaceutical innovation, as could major scientific or technical advances that reduced the costs.

Hopkins Clinical Compound Screening Initiative); H.J. Demonaco, A. Ali and E. von Hippel, The major role of
clinicians in the discovery of off-label drug therapies, 26 Pharmacotherapy 323 (2006); Stephen M. Maurer, Open
Source Drug Discovery: Finding a Niche (Or Maybe Several), 76 UMKC L. Rev. 405).

\(^{211}\) Bessen & Meurer, supra note __.
ground with respect to the issue of gray market goods. A fair use approach thus might provide a
path out of the stalemate caused by attempts to balance the value of essential medicines to those
who cannot afford them against the value of as-yet-uninvented future medicines.

V. CONCLUSIONS

This Essay has attempted to update the inquiry into the wisdom of “patent fair use” to
account for the evolution of technology and of inventive paradigms in the years since
O’Rourke’s seminal treatment of the issue in 2000. I have argued that a fair-use-type ex post
approach to cabining patent exclusivity is even more attractive as a theoretical matter now than it
was in 2000. I have also suggested a set of “patent fair use 2.0” factors that would be relevant to
such an exemption: 1) Is there a justifiable failure to purchase or license due to the social value
of serving an under-served market (taking into account the potential damage to the patentee’s
interests by arbitrage), “anti-patent” license failure due to the patentee’s attempt to squelch
further innovation or to exert control over markets beyond the scope of the patent, or failure to
license due to anticommons-type hold-up? 2) Did the infringer make a substantial improvement
over the patentee’s invention and was there some reason for blocking patent failure? 3) Does the
availability of alternative innovation paradigms in the technological arena provide evidence of
reduced importance of patent incentives? 4) Was the infringer a knowing copyist, independent
inventor, or something in between? If the infringer was not a knowing copyist was her failure to
locate the patent through search reasonable in light of patent search costs in the particular
technology, custom in the industry, the foreseeability of infringement, and the infringer’s
commercial, non-commercial, or small entity status?

While this Essay has been primarily in the nature of a thought experiment about optimal
doctrine, it is obviously important to consider whether any of this is at all practical. Could the
judiciary implement a fair-use-type exemption? The fair use exemption in copyright, though later codified, began in just that way,\textsuperscript{212} as did the limits on patentable subject matter in patent law,\textsuperscript{213} which arise from similar policy concerns. So it might be possible in principle for judges to make such a move. At this point, however, a wholesale move to a fair-use-type exemption by the judiciary seems highly unlikely. A statutory fair-use-type exemption is perhaps more likely, but only just so. Failing that, what can we hope to obtain from a discussion such as this one? First, the law regarding the award of injunctions under the \textit{eBay} decision is only beginning to develop. The analysis here could inform how courts interpret the “balance of hardships” and “public interest” prongs of the test. Second, there will continue to be proposals for, and occasional enactment of, more limited exemptions in various contexts. While limited exemptions may not be optimal, the factors here can provide guidance both in evaluating the need for a particular limited exemption and in designing its implementation. For example, the analysis suggests how one might design an independent inventor-type exemption that might avoid some of the over- and under-coverage of a bright line rule. Finally, a conversation about the analytical basis for infringement exemptions can help to illuminate commonalities among proposals for specific exemptions, as in the example of business methods and research tools discussed above.
