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CONTRACTING PATENTS: A MODERN PATENT EXHAUSTION DOCTRINE

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I. INTRODUCTION

In the world of consumers, "people want products rather than patents."[1] The distinction between a product and the intellectual property embodied within it creates an uneasy tension. The right of a purchaser to control the downstream sale and use of patented goods without obtaining consent from the patent owner conflicts with the right of a patent owner to exclude others from practicing his invention when selling or using those goods.

The patent exhaustion doctrine, also known as the first sale doctrine, evolved in the United States during the late nineteenth century to accommodate the free movement of patented goods in commerce.[2] In its simplest statement, the doctrine operates to "exhaust," or extinguish, the exclusive rights of sale and use[3] as to patented articles sold with the patent owner's authorization.[4] When the patented article embodies a clearly defined invention claimed by one patent, and when its sale features no conditions or restrictions, the patented article emerges

1. Brief Amicus Curiae of Computer & Communications Industry Ass'n in Support of Petitioners at 10, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (No. 06-937).

2. *See, e.g.*, Keeler v. Standard Folding Bed Co., 157 U.S. 659, 666–67 (1895); Adams v. Burke, 84 U.S. (17 Wall.) 453, 455–56 (1873); Mitchell v. Hawley, 83 U.S. (16 Wall.) 544, 547 (1872); Bloomer v. McQuewan, 55 U.S. (14 How.) 539, 553–54 (1852).

3. A patent provides that the patent owner may exclude others from making, using, selling, offering for sale, importing and exporting the patented invention. 35 U.S.C. § 271(a) (2006). Generally, this Article will refer to the "right to use" or the "right to sell" as a shorthand for the right to exclude others from using or selling. Most contend that patents confer only the negative right to exclude, not affirmative rights to use and sell. *See, e.g.*, Bio-Tech. Gen. Corp. v. Genentech, Inc., 80 F.3d 1553, 1559 (Fed. Cir. 1996) ("It is elementary that a patent grants only the right to exclude others and confers no right on its holder to make, use, or sell." (quoting Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 879 n.4 (Fed. Cir. 1991)); 5-16 CHISUM ON PATENTS, § 16.02 ("Basically, a patent grants to the patentee and his assigns the right to exclude others from making, using, and selling the invention. It does not grant the affirmative right to make, use or sell.") (internal citations omitted); Giles S. Rich, Columbia Lecture Notes (cited in F. SCOTT KIEFF ET AL., PRINCIPLES OF PATENT LAW 5 (4th ed. 2008) ("Every business man knows what it means to 'have the exclusive' on something. What he gets from the patent — and all he gets — is a right *to exclude*. That's the patent right."). *But see* Adam Mossoff, *Exclusion and Exclusive Use in Patent Law*, 22 HARV. J.L. & TECH. 321 (2009) (recommending a more expansive view to include use and disposition). For simplicity, when this Article refers to a sale, it is also referring to an offer for sale.

4. Under current law, the patent owner retains his right to exclude purchasers of the articles from making the patented invention anew. *See* Monsanto Co. v. Scruggs, 459 F.3d 1328, 1336 (Fed. Cir. 2006) (holding the patent exhaustion doctrine inapplicable in self-replicating seed case in part because the second generation of seeds were never sold); *see also* Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336 (1961); Morgan Envelope Co. v. Albany Perforated Wrapping Paper Co., 152 U.S. 425 (1894); Cotton-Tie Co. v. Simmons, 106 U.S. 89 (1882); Husky Injection Molding Sys. v. R&D Tool & Eng'g Co., 291 F.3d 780 (Fed. Cir. 2002). The patent exhaustion doctrine implicates the rights of sale and use, presumably because a product will not be purchased without the intent to use or resell the product. *See Adams*, 84 U.S. (17 Wall.) at 455–56.

from that sale unencumbered; the patent owner no longer has rights to exclude activities like resale, ordinary use and repair of the article.

Beneath this simply stated doctrine lurks the complex task of identifying an authorized sale for the purposes of exhaustion. The task is particularly complex when the patent owner or his licensee conditions or restricts the sale of the patented article or when the patented article comprises many different patented inventions. Over time, the Supreme Court has addressed these problems obliquely, if at all. During the first half of the twentieth century, the doctrine also became entwined with other defenses — such as patent owner misuse and restrictions in restraint of trade — making it difficult to ascertain the boundary between patent law and antitrust law.[5] Moreover, the Federal Circuit has held that post-sale restrictions[6] prevent a sale from becoming authorized for the purposes of the exhaustion doctrine, provided such restrictions are within the scope of the patent owner's right to exclude.[7] Throughout its life in the lower and appellate courts, the patent exhaustion doctrine has raised questions regarding the scope of the exclusive rights granted by patents and the extent to which a patent owner may extend those rights to control downstream sales of the patented article.

In *Quanta Computer, Inc. v. LG Electronics, Inc.*,[8] the Supreme Court revisited the exhaustion doctrine after a sixty-six year hiatus,[9] reversing a Federal Circuit case finding no exhaustion when post-sale restrictions were placed on licensed components.[10] In a highly anticipated opinion,[11] Justice Thomas used a formalistic analysis of the license at issue. According to the Court, because the license lacked express restrictions on the licensee's rights to make, use and sell the

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5. *See, e.g.*, United States v. Univis Lens Co., 316 U.S. 241 (1942) (holding that a price restriction in a patent license violated the Sherman Act's prohibition of restraints in trade).

6. Post-sale restrictions are those that purport to restrict the use or sale of the patented article once purchased and in the hands of an end user, not a licensee or distributor. Common post-sale restrictions include "single use only" and "refill only with proprietary ink" notices. *See, e.g.*, Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 702 (Fed. Cir. 1992) (discussing the "single use only" restriction in the context of medical devices); Static Control Components, Inc. v. Lexmark Int'l, Inc., 615 F. Supp. 2d 575, 576 (E.D. Ky. 2009) (discussing "refill only with proprietary ink" notices).

7. *See Mallinckrodt*, 976 F.2d at 708–09.

8. 128 S. Ct. 2109 (2008).

9. Before *Quanta*, the Court last visited patent exhaustion in *Univis*, 316 U.S. 241.

10. *Quanta*, 128 S. Ct. at 2122.

11. Over thirty amici filed briefs in support of various positions. Varying commentary also could be found in newspapers, trade journals, law reviews and weblogs. *See, e.g.*, Stuart Weinberg, *Supreme Court To Hear Case on Patent Licenses*, WALL ST. J., Jan. 2, 2008 at B3A; Posting of Charles R. Macedo et al. to PatentlyO, Quanta v. LG: Will the Supreme Court Clarify the Exhaustion Doctrine?, http://www.patentlyo.com/patent/2008/01/quanta-v-lg-wil.html (Jan. 17, 2008, 01:50 CST); Posting of Mike Masnick to Techdirt, Supreme Court Sounds Skeptical About Suing Up and Down the Supply Chain for Patent Infringement, http://www.techdirt.com/articles/20080117/022921.shtml (Jan. 17, 2008, 17:41 PST).

patented invention, any downstream purchases from the licensee exhausted the patent owner's rights in practicing the invention using component parts manufactured by the licensee. This was so even though the patent owner provided clear notice in other agreements that he did not wish to grant such broad rights.[12] Justice Thomas did not address many of the parties' and amici's arguments regarding the scope of a patent owner's right to exclude others, including whether the patent exhaustion doctrine operates as an immutable rule or a default rule that may be contracted around.[13]

The response to the *Quanta* ruling has been mixed. Lower courts, scholars, and owners or users of patented technology have tried to read the tea leaves in *Quanta* to guide them in close cases within previously unexplored areas of patent law, to lament (or laude) the Court's opinion, or to determine whether *any* existing licensing strategy survives the exhaustion analysis. Given the formalism of the opinion, it is surprising that at least one district court has made fairly strong pronouncements disregarding the viability of post-sale restrictions despite no explicit statement from the Supreme Court overruling the Federal Circuit jurisprudence on this point.[14]

Generally, with respect to the United States patent system, normative rationales center around a utilitarian desire to provide incentives to "promote the Progress of Science and useful Arts."[15] To further this end, the United States patent system grants property rights of exclusion to patent owners in exchange for public disclosure of the patented invention. Strong property rights, in the form of draconian patent enforcement or broad patent grants, may increase the deadweight loss to

12. *Quanta*, 128 S. Ct. at 2114.

13. An immutable rule would prohibit patent owners from restricting licenses or sales in ways that prevent exhaustion from occurring, in either some or all instances. Violations of such restrictions would not have remedies in patent law. A default rule would allow patent owners to restrict licenses or sales in ways that prevent exhaustion from occurring, essentially, granting to patent owners the ability to seek remedies in patent law for violations of such restrictions. *See* Brief for Petitioners at 14, *Quanta*, 128 S. Ct. 2109 (No. 06-937); Brief of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937). *Compare* Brief of Various Law Professors as Amici Curiae in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937) (arguing in favor of default rule view), *and* Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937) (same), *with* Brief of Dell Inc. et al. as Amici Curiae in Support of Petitioners, *Quanta*, 128 S. Ct. 2109 (No. 06-937) (arguing against default rule view).

14. *See* Static Control Components, Inc. v. Lexmark Int'l, Inc., 615 F. Supp. 2d 575, 585–86 (E.D. Ky. 2009) ("After reviewing *Quanta*, *Mallinckrodt*, and the parties' arguments, this Court is persuaded that *Quanta* overruled *Mallinckrodt sub silentio*."). Considering the viability of a post-sale restriction prohibiting ink refills, the court described post-*Quanta* scholarship as divided with respect to whether *Mallinckrodt* was still applicable. Disallowing the restriction, the court stated that "[t]he Supreme Court's broad statement of the law of patent exhaustion simply cannot be squared with the position that the *Quanta* holding is limited to its specific facts," *id.* at 586, but acknowledged that the Supreme Court did not explicitly overrule *Mallinckrodt*. *See id.* at 586 n.7. Despite the obvious implications, the Supreme Court did not cite *Mallinckrodt* in *Quanta*.

15. U.S. CONST. art. I, § 8, cl. 8.

society resulting from the grant of exclusive rights. On the other hand, weak property rights, in the form of diluted patent enforcement or narrow patent grants, may stimulate too little innovation, causing progress to grind to a halt.

Struggling to strike the proper balance between these interests, scholars seek to explore and discover the proper scope of the patent grant[16] or the proper scope of the patent owner's right to exclude through enforcement.[17] To that end, some scholars have suggested a compulsory licensing system, in which a third party, such as a regulatory agency, sets a mandatory price for any unauthorized use of the patent owner's invention.[18] Other scholars have suggested that removing injunctive relief as a remedy available to certain patent owners would better balance the public and private interests.[19] These two suggestions comprise "liability rules" in accordance with the framework for protecting entitlements advanced by Guido Calabresi and A. Douglas Melamed.[20] Within this framework, a patent owner obtains property rule protection of his entitlement because "patents shall have the attributes of personal property."[21] Traditionally, equitable relief is an available remedy to patent owners who succeed in an infringement action.[22]

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16. *See, e.g.*, Carl Shapiro, *Patent System Reform: Economic Analysis and Critique*, 19 BERKELEY TECH. L.J. 1017 (2004) (considering various reform proposals' adverse effects on consumers, competition and innovation).

17. *See, e.g.*, David W. Opderbeck, *Patent Damages Reform and the Shape of Patent Law*, 89 B.U. L. REV. 127 (2009) (discussing the debate about the relation of patent damage awards for infringement and the economic function of patents, and noting the disjuncture between the two).

18. Because of strong public interest in lower prices and broader access, pharmaceuticals and biological research tools are targets for this view. *See* Simone A. Rose, *On Purple Pills, Stem Cells, and Other Market Failures: A Case for a Limited Compulsory Licensing Scheme for Patent Property*, 48 HOW. L.J. 579 (2005); Kimberly M. Thomas, *Protecting Academic and Non-Profit Research: Creating a Compulsory Licensing Provision in Wake of an Absent Experimental Use Exception*, 7 LOY. L. & TECH. ANN. 97 (2007). *But see* Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996) (arguing that private collective rights organizations will naturally arise in markets for intellectual property, obviating the need for statutory compulsory licensing).

19. *See* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2035–39 (2007) (proposing that courts deny injunctions in patent cases when the patent holder's predominant commercial interest is to obtain licensing revenues).

20. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1092 (1972). The cryptic title is a reference to Claude Monet's impressionist paintings — "this article is meant to be only *one* of Monet's paintings of the Cathedral at Rouen. To understand the Cathedral one must see all of them." *Id.* at 1090 n.2.

21. 35 U.S.C. § 261 (2006). *See* Richard A. Epstein, *The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary*, 62 STAN. L. REV. 455, 482–84 (2010).

22. Equitable relief is available, but not inevitable. *See* eBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388, 394 (2006) (striking down long-standing presumption of irreparable harm in post-judgment injunction determinations in patent cases).

Building on the Calabresi and Melamed framework, Abraham Bell and Gideon Parchomovsky developed a theory of "pliability rules"[23] that describe legal remedies in a more dynamic manner.[24] Pliability rules are best described as multiple stage scenarios requiring a change of legal rule or a change in entitlement ownership.[25] These rules "accommodate competing societal interests such as efficiency and equity, and monopoly power and competition."[26] Pliability rules already exist in our judicial system. For example, in freeze-out mergers, a classic pliability rule governs a minority shareholder's entitlement: a property rule protects his ownership of shares until the merger, which triggers a switch to liability rule protection.[27] Another type of pliability rule ensures that the public benefits from patents and copyrights by limiting exclusivity to a specified duration.[28] By going beyond the static property versus liability rule framework, pliability rules offer a way to balance interests without losing the advantages of the individual rules standing alone.

This Article describes the patent exhaustion doctrine as a zero order pliability rule.[29] A property rule protects the patent owner's initial right to exclude others from practicing the invention. When the patent owner, or someone under his authority, sells a patented good embodying the patented invention, the property rule gives way to a liability rule with zero compensation. After the rule shifts, the patent owner cannot pursue patent infringement claims against someone who practices the patented invention with the sold good. The patent owner thus holds a limited right of exclusion. Building upon this basic observation, I propose that the pliability rule rhetoric should be used to justify limiting patent relief when a sale occurs under three practices confused by current exhaustion jurisprudence: (1) license restrictions, including field of use, resale price, tying and territorial restrictions;

23. Abraham Bell & Gideon Parchomovsky, *Pliability Rules*, 101 MICH. L. REV. 1, 26 (2002) ("Property + Liability = Pliability").

24. *Id.*

25. *See id.* at 5.

26. *Id.* at 26.

27. *Id.* at 32–34.

28. *See id.* at 39–44. A United States patent has a term of twenty years from the application's filing date. 35 U.S.C. § 154(a)(2) (2006). A United States copyright usually has a term of the life of the author plus seventy years. 17 U.S.C. § 302(a) (2006).

29. *See infra* note 157 and accompanying text. As described, a pliability rule comprises a shift from property to liability rule protection. A zero order pliability rule acknowledges protection by a liability rule, but zero compensation should be due in damages as compensation to the property owner. There is no distinction in the final result between a zero order pliability rule (a liability rule with zero compensation) and a property rule that merely ends at a certain point. However, describing patent exhaustion, as a matter of law, as a zero order pliability rule allows for an expansion of the liability rule stage from zero compensation to some positive compensation, thus enabling a more flexible understanding of exhaustion and resulting compensation to the patent owner.

(2) post-sale restrictions; and (3) sales of components incorporated into patented goods.

Part II introduces the patent exhaustion doctrine and its historical development. This background includes an analysis of the facts and holding in *Quanta*, its broad and narrow interpretations, and unanswered questions involving license and post-sale restrictions that could benefit from a clearer presentation of the doctrine.[30]

Part III discusses Calabresi and Melamed's classic framework and highlights some challenges to it with respect to choices of rules. It also explores Bell and Parchomovsky's recent work presenting pliability rules and describes the general application of these rules.

Part IV characterizes the patent exhaustion doctrine as a pliability rule with a pre-sale (or license) stage governed by a property rule and a post-sale stage governed by a zero order pliability rule. An authorized sale separates the stages as the rule-triggering event. When the patent owner (or his licensee) sells the patented good in an unauthorized or conditioned sale, the good remains subject to property rule protection of the invention despite physical ownership by a purchaser. This Article argues that the application of a pliability rule to the simple authorized sale scenario is efficient and fair. However, the remaining property rule scenarios, particularly those involving the three practices identified above, remain confusing at best and problematic at worst.

Part V proposes a modern interpretation of the exhaustion doctrine where an authorized sale of a patented good, even when restricted, triggers a shift from property rule protection to liability rule protection. This shift eliminates injunctive relief as a remedy for patent infringement. This Part concludes that a pliability rule — including a zero order pliability rule with no damages liability in the post-sale stage — is sometimes superior to a property rule after a patented good has been sold, even if restrictions were placed on the sale. The advantages of the initial property rule protection are retained, and the flexibility of the changed rule allows the patented good to end up in the hands of the user who values the good the most.

Finally, this Part also considers the implications of applying pliability rule protection to patented goods beyond the simple authorized sale case. It then discusses a real-world example involving the separation of use and sale rights to help illustrate the benefits of the proposal. This Part goes on to discuss the implications of having a court determine damages under a pliability rule for goods sold and incorporated into products covered by combination patents. It concludes, suggesting that the pliability rule proposed here will enhance the overall

30. *See* Brief of Amicus Curiae Yahoo! Inc. in Support of Affirmance of the Federal Circuit at 3, 5–6, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (No. 06-937) ("Yahoo! primarily desires a clear rule.").

size of profits in markets without reducing profit incentives for patent owners to invest in research and development.

II. A PATENT EXHAUSTION PRIMER

The United States patent system "promote[s] the Progress of Science and useful Arts"[31] by providing inventors with exclusive limited rights to encourage investment in the research and development of innovative technology.[32] This conventional rationale for protecting inventions as property interests assumes that the patent owner may have trouble recovering his fixed costs when others easily produce the product or process that embodies the new invention.[33] Any supracompetitive profits gained by the patent owner are secondary to the promotion of progress in innovation, and considered only a means to that end.[34]

31. U.S. CONST. art. I, § 8, cl. 8.

32. WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 294 (2003). Landes and Posner suggest that a "more illuminating way" of approaching the patent system is to consider the economic difficulties inherent in keeping inventions secret (described well by trade secret jurisprudence) and in market structure (without patents, we may see more monopolists because of lead-time and learning-by-doing advantages). *Id.* at 329–30. Regardless of the theory suggesting a rationale for this investment as to invention, disclosure or commercialization, the concepts of this Article relate to its effect — the development and sale of patented articles in commerce. Many courts refer to patents as a limited monopoly. *See* 5-16 CHISUM ON PATENTS § 16.02[c] (discussing whether such characterization, including by the Supreme Court, is prejudicial or improper); Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 786 n.3 (Fed. Cir. 1983) ("Nowhere in any statute is a patent described as a monopoly. . . . It is but an obfuscation to refer to a patent as the 'patent monopoly' . . . ."). However, the right to exclude another from making, using and selling may convey no significant market power, even when the patent is embodied in a product sold in large quantities to consumers. Kenneth W. Dam, *The Economic Underpinnings of Patent Law*, 23 J. LEGAL STUD. 247, 249–50 (1994) (distinguishing between monopoly power, which even leading companies with "1,000 or more patents" are unlikely to achieve, and the enjoyment of economic rent, which many patents, "especially those that achieve commercial success," provide); *see also* Am. Hoist & Derrick Co. v. Sowa & Sons, 725 F.2d 1350, 1367 (Fed. Cir. 1984) ("[P]atent rights are not legal monopolies in the antitrust sense of that word.") (emphasis omitted). Of course, "the very exclusion that forms the foundation of the patent . . . system[] may be punished under the antitrust laws," giving rise to what is often called the patent-antitrust paradox. MICHAEL CARRIER, INNOVATION FOR THE 21ST CENTURY 72. In his book, Carrier details the history and future challenges of this conflict, which he describes as a "wildly swinging pendulum that has favored IP, then antitrust, and now IP again." One controversial topic addressed by Carrier — "reverse payment" settlement agreements between patent owners and generic manufacturers wherein patent owners pay large amounts to generic manufacturers to refrain from entering the market for the patented pharmaceutical — illustrates deference that some courts give to patent owners under the antitrust laws even when patents confer monopoly power and facilitate anticompetitive agreements. *Id.* at 345–82.

33. *See* LANDES & POSNER, *supra* note 32, at 294. For a general comparison of economic theories underlying the United States patent system, see F. SCOTT KIEFF ET AL., PRINCIPLES OF PATENT LAW 65–71 (4th ed. 2008).

34. *See* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 511 (1916) ("[T]he primary purpose of our patent laws is not the creation of private fortunes for the owners of patents, but is 'to promote the progress of science and useful arts.'") (quoting

Such protection comes, however, with great social cost.[35] To minimize this cost, public policy dictates that the patent owner's exclusive rights be limited in scope.[36] Generally, when a patent owner receives compensation for the use of his invention by the sale of a good, the purpose of patent law is fulfilled with respect to that good.[37] Upon receiving compensation, the patent owner's rights to exclude others are exhausted and "the patent law affords no basis for restraining the use and enjoyment of the thing sold."[38] Accordingly, a patent owner's voluntary introduction of a patented good into commerce without restriction prevents the patent owner from exercising his right to exclude others from using or reselling that good as long as it exists.[39]

Procedurally, the patent exhaustion doctrine provides an affirmative defense to infringement claims concerning the use or sale of a patented good after the patent owner authorizes its sale. The purchase of the good from an authorized seller "emancipates such article from any further subjection to the patent throughout the entire life of the patent."[40] Infringement remedies become unavailable to the patent owner, limiting his right to exclude others from practicing his invention.[41]

Because patented goods may break or wear out, the doctrine also allows purchasers to repair the patented good for continued use — a patented good whose patent rights have been exhausted may be repaired by future owners without securing additional permission from the patent owner.[42] However, when the owner of the good does more than repair, and in fact, reconstructs the patented good, the exhaustion doctrine does not privilege his activity; reconstruction comprises a

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U.S. CONST., art. I, § 8, cl. 8); Kendall v. Winsor, 62 U.S. (21 How.) 322, 329 (1858) ("Whilst the remuneration of genius and useful ingenuity is a duty incumbent upon the public, the rights and welfare of the community must be fairly dealt with and effectually guarded. Considerations of individual emolument can never be permitted to operate to the injury of these."); Pennock v. Dialogue, 27 U.S. (2 Pet.) 1, 19 (1829).

35. Jonathan M. Barnett, *Private Protection of Patentable Goods*, 25 CARDOZO L. REV. 1251, 1269 (2004).

36. *See, e.g.*, United States v. Masonite Corp., 316 U.S. 265, 280 (1942) ("Since patents are privileges restrictive of a free economy, the rights which Congress has attached to them must be strictly construed so as not to derogate from the general law beyond the necessary requirements of the patent statute.").

37. *See* Keeler v. Standard Folding Bed Co., 157 U.S. 659, 666–67 (1895) ("The conclusion reached does not deprive a patentee of his just rights, because no article can be unfettered from the claim of his monopoly without paying its tribute. The inconvenience and annoyance to the public that an opposite conclusion would occasion are too obvious to require illustration.").

38. United States v. Univis Lens Co., 316 U.S. 241, 251 (1942).

39. *See, e.g.*, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109, 2115 (2008); *Univis*, 316 U.S. at 251; Bloomer v. McQuewan, 55 U.S. (14 How.) 539, 549 (1852).

40. *Keeler*, 157 U.S. at 666.

41. *Id.* at 662.

42. *See* Husky Injection Molding Sys. v. R&D Tool & Eng'g Co., 291 F.3d 780, 784–85 (Fed. Cir. 2002).

new "making" of the good, the exclusion of which is not exhausted by the authorized purchase.[43]

The policy justifications for the patent exhaustion doctrine are two-fold. First, enforcement of such resale or use restrictions would create an obstacle to the free use and alienability of personal property.[44] A general disfavor of servitudes on personal property arises from several concerns: innocent purchasers will face too many restrictions; judicial enforcement of complex restrictions will be expensive and difficult; and traditional expectations regarding property ownership will be upset.[45] Second, enforcement of resale or use restrictions may be considered restraints in trade that implicate compelling antitrust considerations.[46] For this reason, many of the patent exhaustion cases from the twentieth century revolved around questions of whether restrictions placed on licenses or sales were restraints of trade prohibited by the Sherman Act, and alternatively, whether such restrictions constituted patent misuse.[47]

When the patent owner sells the good to another without restricting the sale, the patent owner's rights to exclude resale and future use of the good are exhausted as to that good. Therefore, when the patent owner sells a patented device "whose sole value is in its use, he re-

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43. *See id.*; *see also* Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 709 (Fed. Cir. 1992) ("Although the rule is straightforward its implementation is less so, for it is not always clear where the boundary lies: how much 'repair' is fair before the device is deemed reconstructed."). For a detailed discussion of the "idiosyncratic" repair-reconstruction doctrine, see Mark D. Janis, *A Tale of the Apocryphal Axe: Repair, Reconstruction and the Implied License in Intellectual Property Law*, 58 MD. L. REV. 423, 425 (1999).

44. Gerald R. Gibbons, *Field Restrictions in Patent Transactions: Economic Discrimination and Restraint of Competition*, 66 COLUM. L. REV. 423, 430 (1966) (arguing that a prohibition of field-of-use restrictions may be warranted on the grounds that it tends to reduce competition in markets for patented goods); *see also* Zechariah Chafee, Jr., *Equitable Servitudes on Chattels*, 41 HARV. L. REV. 945 (1928) (questioning disfavor for equitable servitudes in personalty); Zechariah Chafee, Jr., *The Music Goes Round and Round: Equitable Servitudes and Chattels*, 69 HARV. L. REV. 1250, 1258 (1956) (revisiting his original analysis and questioning whether business justifications for equitable servitudes on chattels would ever outweigh the "annoyance, inconvenience and useless expenditure of money" that may be caused); Glen O. Robinson, *Personal Property Servitudes*, 71 U. CHI. L. REV. 1449 (2004) (arguing that the traditional hostility toward sale and use restrictions in property, particularly intellectual property, is misguided). For a recent take on this debate, see Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885 (2008) (comparing common law personal servitude jurisprudence and modern licensing practices, including shrink-wrap licenses and end user license agreements).

45. Gibbons, *supra* note 44, at 431. Gibbons explains that "[t]he importance of these considerations would seem to vary in accordance with the context in which the restraint arises." *Id.*

46. *See* Ethyl Gasoline Corp. v. United States, 309 U.S. 436, 456–57 (1940) (collecting cases). *But see* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 127 S. Ct. 2705, 2714 (2007) ("The Court should be cautious about putting dispositive weight on doctrines from antiquity but of slight relevance.").

47. *See infra* Part III.B.

ceives the consideration for its use and he parts with the right to restrict that use."[48]

A. Determining Authorized Sale

The difficulty that courts encounter in applying the exhaustion doctrine typically arises in determining whether the sale has been authorized, commonly involving one or more of three scenarios: 1) the patent owner licenses sales;[49] 2) the patent owner sells the article with restrictions applied to purchasers directly;[50] and 3) the patent owner sells one or more components of a multi-component patented good.[51]

1. Licensing Another Seller

Although a patent owner may assert his rights in law or equity by initiating an infringement action against someone practicing the invention without a license, the patent owner may also grant a license, either express in agreements (including settlements) or implied in law or fact.[52] When a licensee violates a term of the license related to practicing the invention, the patent owner may seek redress for contract claims in addition to patent claims.[53]

A patent owner has a great degree of flexibility in licensing his patents, limited only by his creativity and certain aspects of patent, contract and antitrust law.[54] A patent license may convey different scopes of promises not to sue for activities within a certain period of time, within a certain territory or within a field of use. The patent owner may license the patented invention exclusively or non-exclusively, and may reserve rights in any remainder not exclusively granted by license.[55] In consideration, the patent owner may charge a

48. Adams v. Burke, 84 U.S. (17 Wall.) 453, 456 (1873).

49. *See, e.g.*, Gen. Talking Pictures Corp. v. W. Elec. Co., 304 U.S. 175, 179 (1937).

50. *See, e.g.*, Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700 (Fed. Cir. 1992).

51. *See, e.g.*, United States v. Univis Lens Co., 316 U.S. 241 (1942).

52. Although it is common (and easier) to describe a license as a permission to practice the invention, because a patent grants only negative rights — the right to exclude others from making, using and selling — it is more accurate to say that a license is a promise not to sue. Transcore, LP v. Elec. Transaction Consultants Corp., 563 F.3d 1271, 1275–76 (Fed. Cir. 2009) (quoting Spindelfabrik Suessen-Schurr, Stahlecker & Grill GmbH v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft, 829 F.2d 1075, 1081 (Fed. Cir. 1987)); Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co., 77 F. 288, 290 (6th Cir. 1896) ("It has been said that the sole matter conveyed in a license is the right not to be sued.") (citation omitted).

53. *See, e.g.*, Jacobsen v. Katzer, 535 F.3d 1373, 1380 (Fed. Cir. 2008); Sun Microsystems, Inc. v. Microsoft Corp., 188 F.3d 1115, 1121 (9th Cir. 1999).

54. *See* ROBERT W. GOMULKIEWICZ, XUAN-THAO NGUYEN & DANIELLE CONWAY-JONES, LICENSING INTELLECTUAL PROPERTY: LAW AND APPLICATION 173 (2008).

55. *Id.*

royalty rate per unit, a fixed fee, a combination thereof or nothing.[56] Licenses may sometimes result from settlement of a pending or threatened patent infringement case. These varied reasons, business and otherwise, may explain patent owners' decisions to license patents and the terms of such licenses.

When the patent owner grants a license to sell the patented invention, his rights to resale and use are exhausted when the licensee sells the patented goods.[57] If the license is subject to a restriction limiting the right to sell, such as a territorial, duration or field of use restriction, the licensee's sale to the purchaser only exhausts the patent owner's rights to restrict resale and use when the restriction has not been violated.[58] When a licensee sells a patented good without violating any restrictions, then the good is free of the patent owner's rights to exclude practicing the invention.[59] Otherwise, the good infringes

56. *Id.* For insight into the economics of royalty structure, see Mukesh Eswaran, *Cross-Licensing of Competing Patents as a Facilitating Device*, 27 CAN. J. ECON. 689 (1994); Morton I. Kamien & Yair Tauman, *Fees Versus Royalties and the Private Value of a Patent*, 101 Q.J. ECON. 471 (1986); and Ana I. Saracho, *The Relationship Between Patent Licensing and Competitive Behavior*, 73 MANCHESTER SCH. 563 (2005).

57. The case law is unclear as to whether this intermediate license is a sale for the purposes of exhaustion. *Compare* LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364, 1370 (Fed. Cir. 2006) ("[P]rior to this litigation, LGE granted Intel a license covering its entire portfolio of patents on computer systems and components. This transaction constitutes a sale for exhaustion purposes."), *rev'd sub nom.* Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008), *with* LG Elecs., Inc. v. Asustek Computer, Inc., 248 F. Supp. 2d 912, 917 (N.D. Cal. 2003) (relying on a licensee's sale of patented components to the defendants). The former view appears to be inapposite to the Court's holdings in *General Talking Pictures*, which treats the licensee as an agent of the patent owner when making sales that trigger the exhaustion doctrine. *See* Gen. Talking Pictures Corp. v. W. Elec. Co., 304 U.S. 175, 179–183 (1937). In contrast, when the patent owner or his licensee parts with title to the patented good, the form of the disposition is irrelevant. United States v. Masonite Corp., 316 U.S. 265, 278 (1942); Harshberger v. Tarrson, 87 F. Supp. 43, 45–46 (N.D. Ill. 1949) (finding exhaustion by disposal through security pledge), *aff'd*, 184 F.2d 628 (7th Cir. 1950).

58. *See Gen. Talking Pictures*, 304 U.S. at 179–83. In *General Talking Pictures*, a divided Court held that a non-exclusive licensee with a license to make, use and sell machines for home use did not have authority to sell the machines to purchasers for commercial use. *Id.* The purchasers could not claim that the patent was exhausted through the sale. In a sharp dissent, Justice Black argued that field of use restrictions should be a matter of state contract law, not patent law. *See id.* at 184–85 (Black, J., dissenting). The dissent appeared troubled by the fact that activity long after the initial sale could determine whether a later sale by the licensee was authorized by the patent owner. *Id.* at 186–88.

59. Keeler v. Standard Folding Bed Corp., 157 U.S. 659, 666 (1895) (holding patent exhausted when purchased lawfully and transported outside territorial rights of seller); Adams v. Burke, 84 U.S. (17 Wall.) 453, 454 (1873) (same). This is not true for international sales — an article containing an invention patented in a foreign country, which is purchased from a foreign patent owner or his foreign licensee, may not be imported into the United States without authorization from the United States patent owner, even if the United States patent owner also owns the foreign patent. Boesch v. Graff, 133 U.S. 697, 703 (1890); Jazz Photo Corp. v. Int'l Trade Comm'n, 264 F.3d 1094, 1110–11 (Fed. Cir. 2001). *But see* LG Elecs., Inc. v. Hitachi, Ltd., 2009 U.S. Dist. LEXIS 20457, at *28–29 (N.D. Cal. Mar. 13, 2009) (finding this distinction irreconcilable with *Quanta*).

the patent it embodies. State contract law governs the interpretation of license restrictions.[60]

A patent owner also can divide his bundle of rights to exclude others, separating the right to use from the right to sell the patented invention.[61] When a licensee receives only the right to use the patented good, restricted or otherwise, the good does not become the property of the licensee and patent exhaustion does not apply.[62] When a licensee receives only the right to sell the patented good, some courts apply the patent exhaustion doctrine to allow resale *and* use.[63] Other courts suggest that the licensee conveys to his purchasers only those rights obtained from the patent owner, and nothing more.[64] A patent owner may implement this bifurcated licensing scheme strategically to extract revenue from those who purchase from a restricted licensee; it is unclear whether exhaustion is triggered in such cases.[65]

2. Post-Sale Restrictions

After early courts held that an authorized, unconditional sale prevented the patent owner from enforcing his patent rights as to the

60. Lear, Inc. v. Adkins, 395 U.S. 653, 661–62 (1969).

61. Henry v. A. B. Dick Co., 224 U.S. 1, 25 (1911) ("[T]he mere value of a patented machine is often . . . insignificant in comparison with the value of its use; and the courts have permitted a severance of ownership and right of use, if the patentee has chosen to dissever them, and if his intent is not doubtful.") (quoting Porter Needle Co. v. Nat'l Needle Co., 17 Fed. Rep. 536 (C.C.D. Mass. 1883)); *Adams*, 84 U.S. (17 Wall.) at 456 ("The right to manufacture, the right to sell, and the right to use are each substantive rights, and may be granted or conferred separately by the patentee.").

62. The patent owner retains title to the property embodying the patented invention, having granted only the license to use. Mitchell v. Hawley, 83 U.S. (16 Wall.) 544, 548 (1872).

63. *Adams*, 84 U.S. (17 Wall.) at 456 ("[W]hen the patentee, or the person having his rights, sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use. The article, in the language of the court, passes without the limit of the monopoly.") (citations omitted). *But see* Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent at 18 n.7, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (No. 06-937) (describing the right to use upon sale as an implied license that may be disclaimed). Confusion exists in the cases regarding implied licenses to use sold articles, but exhaustion, which turns only on the patented article, can be distinguished from an implied license, which, like all equitable doctrines, also arises from the patent owner's conduct. *See* Amber L. Hatfield, *Patent Exhaustion, Implied Licenses, and Have-Made Rights: Gold Mines or Mine Fields?*, 2000 COMP. L. REV. & TECH. J. 1 (distinguishing the doctrines on these grounds). Although broader in scope than the exhaustion doctrine, an implied license can be disclaimed or limited. Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 31–32 (2001) ("[W]hile patent exhaustion stems from inherent limits on the grant of the patent right, implied license is a doctrine of quasi-contract, and depends on the beliefs and expectations of the parties to the sales transaction.") (citation omitted).

64. *See* Transcore, LP v. Elec. Transaction Consultants Corp., 563 F.3d 1271, 1275 (Fed. Cir. 2009) ("[O]ne cannot convey what one does not own."). This could mean that a purchaser risks infringement when using a patented article sold by a licensee without the right to use. *See* Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937) (making this argument to defend licensing scheme).

65. *See infra* Part IV.D.2.

good sold,[66] patent owners began placing conditions directly onto goods in the form of notices.[67] In cases challenging these notices as beyond the scope of the patent grant, courts focused on the traditional disfavor for contracts of adhesion, restrictions on transfer of personal property and restraints on trade. The courts held that certain notice restrictions did not prohibit application of the exhaustion doctrine to the sold good — for example, resale price restrictions[68] and restrictions to use with non-patented articles.[69] In notice cases, patent owners commonly argued that restrictions partially withholding rights are within the patent grant because their exclusive rights permitted them to withhold the patented good altogether.[70] The Supreme Court characterized this argument as defective on the grounds that it failed to distinguish between the patent owner's right to exclude, which may be asserted against all through infringement suits, and private ordering through contract, which is subject to general contract law principles.[71]

In *General Talking Pictures*, the Court hinted that notice restrictions on field of use may be enforceable as to downstream purchasers.[72] There, a licensee with the right to sell for use in one field sold

66. *See supra* note 39 and accompanying text. The term "conditional sale" in these cases probably meant conditional in the sales law sense, although dicta in these earlier cases has been interpreted by some courts to mean that any restrictions meant to follow the patented article in commerce should be considered "conditions" on sale that prevent exhaustion from attaching. *See* B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1426 (Fed. Cir. 1997) ("[A]n unconditional sale of a patented device exhausts the patentee's right to control the purchaser's use of the device thereafter . . . . This exhaustion doctrine, however, does not apply to an expressly conditional sale or license.") (citation omitted).

67. *See, e.g.*, Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 506 (1917); Straus v. Victor Talking Mach. Co., 243 U.S. 490, 494–95 (1917); Bauer & Cie v. O'Donnell, 229 U.S. 1, 16 (1913); Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 701 (Fed. Cir. 1992).

68. *See, e.g.*, *Bauer & Cie*, 229 U.S. at 17 (reasoning that such restrictions were "beyond the protection and purpose of the [Patent A]ct").

69. *See, e.g.*, *Motion Picture Patents*, 243 U.S. at 506. The Supreme Court first approved of tying a patented article to a non-patented article as within the scope of the patent owner's rights to exclude in *Henry v. Dick*, reasoning that the patent owner was free to not produce the patented articles at all. 224 U.S. 1 (1912). *See also* Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co., 77 F. 288 (6th Cir. 1896). At the same time, the Court continued to refuse to enforce resale price restrictions. *See Bauer & Cie*, 229 U.S. 1. Plainly, any restriction, including those to price, can be construed as a use restriction. In 1917, the Court overruled *Henry* and declared tying unpatented articles beyond the scope of the patent grant. *Motion Picture Patents*, 243 U.S. at 518. Justice Holmes, previously in the majority in *Henry*, issued a pithy dissent. *Motion Picture Patents*, 243 U.S. at 519 (Holmes, J., dissenting) ("Generally speaking, the measure of a condition is the consequence of a breach, and if that consequence is one that the owner may impose unconditionally, he may impose it conditionally upon a certain event."). In 1914, between *Henry* and *Motion Pictures Patents*, Congress passed the Clayton Act, specifically prohibiting certain cases of tying goods, "whether patented or unpatented," thus reinforcing the view that tying restrictions were not enforceable. Clayton Act § 3, 15 U.S.C. § 14 (2006). It is unclear whether Congress considered tying goods to be anticompetitive or outside the patent grant.

70. *Motion Picture Patents*, 243 U.S. at 514.

71. *Id.*

72. Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 124, 127 (1938)

patented machines with license notices to the customer regarding future use. The licensee sold the device to the purchaser in suit with the intent that the restriction be violated, i.e., that the purchaser use the device in another field of use. The Court found that the sale from the licensee to the purchaser was not authorized because the licensee violated the use restriction when he knowingly sold for use in a different field of use — therefore, the patent was not exhausted.[73] The Court declined to determine whether the notice restriction could be enforced against purchasers had the licensee not violated the restriction.[74]

In 1992, the Federal Circuit approved the use of post-sale restrictions in *Mallinckrodt, Inc. v. Medipart, Inc.*,[75] where the restriction at issue limited the patented device to a single use.[76] The defendant accused of violating the post-sale restriction purchased used devices from hospitals, refurbished them and resold them to hospitals. Ruling upon the enforceability of the post-sale restriction in patent law, the Federal Circuit held that such restrictions are enforceable in accordance with *General Talking Pictures* when the restriction is "reasonably within the patent grant," including any restriction relating to the subject matter within the scope of the patent claims.[77]

Mallinckrodt presumed that non-exhaustion for goods sold with post-sale restrictions was "reasonably within the patent grant."[78] Under this rationale, any restriction on use is reasonably within the patent grant. Attempting to rein in this expansive definition, the Federal Circuit has held that "[t]he key inquiry under this fact-intensive doctrine is whether, by imposing the condition, the patentee has 'impermissibly broadened the "physical or temporal scope" of the patent grant with anticompetitive effect.'"[79] Of course, this makes it difficult for courts to analyze whether a condition is enforceable through a pat-

73. The Court stated that restricted use licenses were known and approved. *Id.* (citing Providence Rubber Co. v. Goodyear, 76 U.S. (9 Wall.) 788, 799–800 (1869)). Justice Black challenged this practice, to which the parties had agreed: "Neither stipulation nor practice could justify extension of patent monopoly beyond the limits of legality fixed by Congress and recognized by this Court for over three-quarters of a century." *Id.* at 132–33 (Black, J., dissenting). The knowledge by both licensee and purchaser of the license terms seemed influential in *General Talking Pictures*, which is surprising given other cases finding the intent of the parties irrelevant as to whether exhaustion applied. *See, e.g.*, Hobbie v. Jennison, 149 U.S. 355, 362–63 (1893). For a discussion supporting Justice Black's view that field-of-use restrictions are enforceable by contract only, see Mark R. Patterson, *Contractual Expansion of the Scope of Patent Infringement Through Field-of-Use Licensing*, 49 WM. & MARY L. REV. 157, 209–27 (2007).

74. *Gen. Talking Pictures*, 305 U.S. at 127.

75. 976 F.2d 700 (Fed. Cir. 1992).

76. *Id.* at 702, 708–09.

77. *Id.* at 708–09. The parties settled without appealing the case to the Supreme Court.

78. *Id.* at 708.

79. B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1426 (Fed. Cir. 1997) (quoting Windsurfing Int'l, Inc. v. AMF, Inc., 782 F.2d 995, 1001–02 (Fed. Cir. 1986)). Express conditions to sale "are contractual in nature and are subject to antitrust, patent, contract, and any other applicable law." *Id.*

ent infringement action. Moreover, at least one scholar has suggested that *Mallinckrodt* and a patent owner's ability to contract around exhaustion using post-sale restrictions reflect a departure from the Supreme Court's jurisprudence.[80]

3. The Patented Combination

The patent exhaustion doctrine also applies to incomplete articles that have no substantial use other than to be manufactured into a separate patented and allegedly infringing article.[81] When a patent owner or his licensee sells a component or unfinished article embodying the "essential features of his patented invention" and he intends that the purchaser complete the article consistent with the patent, "he has sold his invention so far as it is or may be embodied in that particular article" and the patent exhaustion doctrine applies.[82] Requiring components to comprise the essential features of the patented invention is part of the effort to ensure that the patent owner does not collect more than one reward for his patented invention.[83]

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80. *See* Richard H. Stern, *Post-Sale Patent Restrictions After* Mallinckrodt — *An Idea in Search of Definition*, 5 ALB. L.J. SCI. & TECH. 1, 6–7 (1994) ("The court held the prior case law — including many decisions of the Supreme Court —to the contrary to be mere *obiter dictum* and without legal force.").

81. United States v. Univis Lens Co., 316 U.S. 241, 250–51 (1942) (holding that price restrictions passed to wholesale purchasers were not enforceable because the patents as to the finished article were exhausted by the sale of the unfinished article).

82. *Id*. at 251.

> The first vending of any article manufactured under a patent puts the article beyond the reach of the monopoly which that patent confers. Whether the licensee sells the patented article in its completed form or sells it before completion for the purpose of enabling the buyer to finish and sell it, he has equally parted with the article, and made it the vehicle for transferring to the buyer ownership of the invention with respect to that article. To that extent he has parted with his patent monopoly in either case, and has received in the purchase price every benefit of that monopoly which the patent law secures to him.

Id. at 252.

83. *Id.* at 251–52; *see* Cyrix Corp. v. Intel Corp., 846 F. Supp. 522, 540 (E.D. Tex. 1994), *aff'd*, 42 F.3d 1411 (Fed. Cir. 1994). When the component is capable of use only in practicing the patent, and when the final step necessary to practice the patent is the application of common processes or the addition of standard parts, the patent is exhausted by sales of the component. Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109, 211819 (2008). "[T]he nature of the final step . . . is the relevant characteristic." *Id.* at 2120. In *Univis* and *Quanta*, the final step to practice the patent was "common and non-inventive." *Id.* In *Quanta*, memory was connected to a microprocessor, *id.*, while in *Univis* lens blanks were ground and finished in the normal manner, *Univis*, 316 U.S. at 244. For an argument that the *Univis* test should require a determination of whether the component is separate and patentably distinct from the combination claims, see John W. Osborne, *A Coherent View Of Patent Exhaustion: A Standard Based on Patentable Distinctiveness*, 20 SANTA CLARA COMPUTER & HIGH TECH. L.J. 643, 669–70 (2004) [hereinafter Osborne, *Coherent View*] and John W. Osborne, *Justice Breyer's Bicycle and the Ignored Elephant of Patent Exhaustion: An Avoidable Collision in* Quanta v. LGE, 7 J. MARSHALL REV. INTELL. PROP. L. 245 (2008) [hereinafter Osborne, *Justice Breyer's Bicycle*].

B. Other Limits — Contract and Antitrust

The arrangements by which a patent owner utilizes the patent — for example, to secure royalties or production of a patented article — are subject to general law, including property, contract and antitrust law.[84] A patent owner may protect himself with special contracts "brought home to the purchasers," and such special contracts will be analyzed under state law, not federal law.[85] Private agreements, including those license and sale restrictions allowed in accord with *General Talking Pictures* and *Mallinckrodt*, may not enlarge the limited grant of exclusion to the patent owner.[86] For instance, a patent owner cannot secure protection from competition by entering private agreements to regulate prices and suppress competition;[87] restrictions that violate the Sherman Act are not enforceable in licenses or sales of

When the component does not rise to the level of an essential feature of the combination patent claims, an implied license may operate to prevent a patent owner from pursuing patent infringement claims against a downstream assembler of authorized components. In practice, it may be difficult to distinguish an implied license to use a patented article and the application of the exhaustion doctrine to extinguish a patent owner's right to exclude others from using a patented article. Indeed, even the Supreme Court's language leaves the two legal doctrines confused. *See Univis*, 316 U.S. at 250–51 (determining that the sale of a component is both a complete transfer of ownership of the component, which is within the protection of the patent law, and a license to practice the final stage of the patent procedure); Anton/Bauer, Inc. v. PAG, Ltd., 329 F.3d 1343, 1350 (Fed. Cir. 2003) ("[S]ale of an unpatented article exhausts the seller's right to control the future sale and use of that article, but only certain circumstances exhaust the seller's patent right and result in an implied license . . . . The Court's statements in *Univis* demonstrate how closely related the exhaustion doctrine is to the grant of an implied license. Indeed, they suggest that an implied license stems from the exhaustion of a patent right."); *see also* Wang Labs. v. Mitsubishi Elecs. Am., Inc., 103 F.3d 1571, 1580 (Fed. Cir. 1997). For an analysis of the exhaustion doctrine and implied license doctrine in the context of semiconductor foundries, see Hatfield, *supra* note 63, at 7 (distinguishing implied license from exhaustion on the grounds that the patent owner's conduct determines whether an implied license has been granted and the exhaustion doctrine turns only on the patented articles in dispute). The Federal Circuit established a two-part test for the grant of an implied license to practice a patented invention by virtue of a sale of non-patented components: (1) the component involved must have no non-infringing uses; (2) the circumstances of the sale must "plainly indicate that the grant of a license should be inferred." Bandag, Inc. v. Al Bolser's Tire Stores, Inc., 750 F.2d 903, 924–25 (Fed. Cir. 1984) (quoting Hunt v. Armour & Co., 185 F.2d 722, 729 (7th Cir. 1950)); *see also* Jacobs v. Nintendo of Am., Inc., 370 F.3d 1097, 1100 (Fed. Cir. 2004); Met-Coil Sys. Corp. v. Korners Unlimited, Inc., 803 F.2d 684, 686 (Fed. Cir. 1986) (affirming the lower court's holding that the alleged infringers enjoyed an implied license to practice the patent in suit and were not infringing as a matter of law); Cornell Univ. v. Hewlett-Packard Co., 609 F. Supp. 2d 279, 291 (N.D.N.Y. 2009). Parties may expressly disclaim operation of waiver by implied license if done contemporaneously with or before the sale of the patented article. To the extent that the patent exhaustion doctrine cannot be disclaimed (a debatable proposition) the two doctrines may be distinguished on this point. *See* Hatfield, *supra* note 63, at 25–27.

84. Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 703 (Fed. Cir. 1992).

85. *See* Keeler v. Standard Folding Bed Co., 157 U.S. 659, 666 (1895). The *Keeler* Court appears to be referring either to contracts that the patent owner or his licensee negotiates individually with purchasers of the goods or notices placed on the goods themselves.

86. Ethyl Gasoline Corp. v. United States, 309 U.S. 436, 456–59 (1940).

87. United States v. Masonite Corp., 316 U.S. 265, 278–79 (1942).

patented articles.[88] If restrictions in a private agreement are not enforceable by law, the sale under the restricted license exhausts the patent rights even if the restrictions are violated.[89]

C. The Quanta *Case*

After *Mallinckrodt*, the question of whether authorized sales by a licensee with post-sale restrictions could prevent exhaustion remained unanswered. In other words, consider a blanket license to make, use and sell the patented invention, which requires notices to downstream purchasers that the patented good was not licensed for use in a particular application or by a particular user. Would such a license constitute an authorized sale such that the patent owner's rights were exexhausted, or would the notice serve as a *Mallinckrodt*-style condition preventing the sale from exhausting the patent rights? The Court revisited the issue in *Quanta*.[90]

The license agreement at issue authorized the licensee to "make, use, sell (directly or indirectly), offer to sell, import or otherwise dispose of" the licensee's products practicing the LG Electronics ("LGE") patents.[91] However, in a separate agreement, the licensor specifically required Intel, the licensee, to notify its customers that they did not have a license to practice the patents when combining the licensed Intel products with other non-licensed components.[92] When computer makers like Quanta did just that, combining licensed products from Intel with non-Intel components, LGE sued, alleging in-

88. *See Ethyl Gasoline*, 309 U.S. at 458 (holding that certain conditional licensing agreements violated the Sherman Act); Standard Sanitary Mfg. Co. v. United States, 226 U.S. 20 (1912) (holding patent did not exempt patent owner from Sherman Act liability for pricing scheme).

89. *See, e.g.*, Adams v. Burke, 84 U.S. (17 Wall.) 453, 456–57 (1873).

90. Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008). The *Quanta* litigation involved an agreement between patent owner LG Electronics, Inc. ("LGE"), a major South Korean electronics manufacturer, and licensee U.S.-based Intel Corp., the world's largest semiconductor chip maker, who entered into a patent cross-license agreement featuring an undisclosed payment from Intel to LGE. *Intel and LG Electronics Announce Long-term Business Agreement*, BUSINESS WIRE, Aug. 28, 2000. LGE wanted to develop products using Intel processors. The cross-licensed patents, which LGE purchased after issue, arguably covered Intel processors and provided bargaining leverage for LGE to negotiate a lump sum payment and rights to Intel patents. Once the deal with Intel was in place, LGE began to pursue original equipment manufacturers who were assembling computers using Intel's processors and other component parts, seeking licenses and threatening infringement actions. The *Quanta* litigation involved a set of defendants who refused to settle with Quanta for a license from LGE to use the Intel processors. *See Quanta*, 128 S. Ct. at 2114.

91. *Quanta*, 128 S. Ct. at 2114 (quoting Brief for Petitioners at 8, *Quanta*, 128 S. Ct. 2109 (No. 06-937)). Additionally, no license "[was] granted by either party hereto . . . to any third party for the combination by a third party of Licensed Products of either party with items, components, or the like acquired . . . from sources other than a party hereto, or for the use, import, offer for sale or sale of such combination." *Id.* (quoting Brief for Petitioners at 8, *Quanta*, 128 S. Ct. 2109 (No. 06-937)).

92. *Id.*

fringement on the grounds that the computer makers violated their license notices.[93] In defense, the computer makers asserted that the purchase of licensed processors from the licensee exhausted the patents at issue even when the processors were combined with other non-licensed components in violation of the notices.[94]

The district court held that patent exhaustion applied to preclude infringement claims against Quanta; LGE's unconditional sale of an incomplete product with no substantial use other than to be manufactured as an essential feature of a completed patented article, exhausted LGE's patents claiming the combination product or process.[95] The Federal Circuit reversed, explaining that the exhaustion doctrine does not apply to an expressly conditional sale or license, and that the district court was wrong to characterize the license agreement as unconditional, because of the notice requirement.[96]

Quanta's appeal to the Supreme Court generated much interest among firms, scholars and the government.[97] Quanta and its supporters argued that LGE's license granted Intel the full right to make, use and sell the patented components. Intel's sale of those components to Quanta and other computer manufacturers exhausted LGE's patents on the combination system.[98] Also in support of Quanta, the United States argued that the Federal Circuit should be reversed on the grounds that its precedent treating exhaustion as a default rule that parties can evade through private contracting is at odds with the Supreme Court's precedent on this topic.[99] Several briefs were filed in support of neither party, some arguing that the Supreme Court should decide affirmatively whether the patent exhaustion doctrine is a species of disclaimable implied license term or a limitation of the patent

93. LG Elecs. Inc. v. Asustek Computer Inc., 65 U.S.P.Q.2d 1589 (N.D. Cal. 2002), *rev'd sub nom.* LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364 (Fed. Cir. 2006), *rev'd sub nom. Quanta*, 128 S. Ct. 2109. Although there were many named defendants in the California case, this Article will refer to the defendants collectively as "Quanta." All of the defendants bought allegedly infringing processors from Intel. For a summary description of LGE's patents and the technology at issue in the lawsuit, see *Quanta*, 128 S. Ct. at 2113–14. LGE did not develop the technology, but purchased the patents from other entities. *Id*. at 2113.

94. *Asustek*, 65 U.S.P.Q.2d at 1592.

95. *Id.*; *see also* Minebea Co., Ltd. v. Papst, 13 F. Supp. 2d 35, 44 (D.D.C. 1998).

96. *Bizcom*, 453 F.3d at 1369. The Federal Circuit found that the Intel sales were conditional on the grounds that the agreement expressly disclaims granting a license allowing computer manufacturers like Quanta to combine Intel's licensed processors with other non-Intel parts and that Intel was to place a notice restriction so conditioning the sale.

97. Thirty-one amicus briefs were filed, including one from the United States Solicitor General. As of May 8, 2010, all briefs were available in .pdf form through the American Bar Association at http://www.abanet.org/publiced/preview/briefs/jan08.shtml.

98. Brief for Petitioners, *Quanta*, 128 S. Ct. 2109 (No. 06-937). Briefs in support of Quanta were filed by such diverse amici as Dell Inc., the Electronic Frontier Foundation, Automotive Engine Rebuilders Association, the Antitrust Institute, IBM and Gen-Probe, Inc.

99. Brief for the United States as Amicus Curiae Supporting Petitioners at 6, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

grant itself.[100] Others argued on behalf of seed companies that the Court should not disturb Federal Circuit precedent regarding the inapplicability of the exhaustion doctrine to the rights to make a patented invention.[101]

On the other side, LGE argued that the essential features test for components[102] only applies when the sold good and the downstream product are covered by the same patents. LGE distinguished its component patents as separate from the patents applying to the combination products using the licensed components.[103] LGE also argued that an implied license did not attach because Intel provided the notice disclaimer to its customers.[104] Amici in support of LGE reiterated these arguments.[105] A group of law professors filed a brief presenting *Quanta* as a stark choice between freedom of contract and freedom from chattel servitudes that should be resolved by viewing exhaustion doctrine as a default rule serving to fill gaps in contracts.[106]

In a unanimous decision, the Court reversed the Federal Circuit's decision, holding that the licensed components were an essential feature of the downstream patents and capable of no non-infringing uses.[107] Once it established that the components could exhaust the downstream patents, the Court had to determine whether LGE, the licensor, authorized the sale by Intel, the licensee.[108] The Court stated that the notice did not turn Intel's license into a conditioned license — the exhaustion doctrine applies to the components sold under the license regardless of the post-sale restriction.[109]

One view of the *Quanta* opinion might be that it represents no change to the exhaustion doctrine, narrowly turning on the license

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100. Brief of the Licensing Executives Society (U.S.A. & Canada), Inc. as Amicus Curiae in Support of Neither Party at 2, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

101. *See, e.g.*, Brief for Croplife International as Amicus Curiae Supporting Neither Party, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

102. *See supra* notes 82–83 and accompanying text.

103. Brief of Respondent at 13–17, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

104. *Id*. Interestingly, LGE did not argue that the Federal Circuit's *Mallinckrodt* decision salvaged the post-sale restriction if within the scope of the patent grant.

105. *See, e.g.*, Brief of Amici Curiae Aerotel, Ltd., Aerotel U.S.A., Inc. and Aerotel U.S.A., LLC in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937); Brief of Amici Curiae Interdigital Communications, LLC and Tessera, Inc. in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937); Brief of Amicus Curiae Papst Licensing GmbH & Co. Kg in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

106. Brief of Various Law Professors as Amici Curiae in Support of Respondent, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

107. *Quanta*, 128 S. Ct. at 2122.

108. *Id.* at 2121.

109. The opinion is short on patience for the Federal Circuit's decision below. For an interesting summary of recent Supreme Court patent jurisprudence, including *Quanta*, in the context of speculating as to whether the Supreme Court utilized these cases to establish dominance over the Federal Circuit in the field of patent law, see Gretchen S. Sween, *Who's Your Daddy? A Psychoanalytic Exegesis of the Supreme Court's Recent Patent Jurisprudence*, 7 NW. J. TECH. & INTELL. PROP. 204 (2009).

agreement at issue.[110] Intel received the right to practice the invention without restriction in one agreement, and separately agreed to place a notice on the licensed components requiring customers to obtain another license from LGE to combine these components with non-licensed ones.[111] A different and more expansive view might be that the *Quanta* opinion has affirmatively rejected the view that one can contract around the doctrine.[112] Unfortunately, *Quanta* does not address the viability of *Mallinckrodt* or whether the exhaustion doctrine should be considered immutable rather than a default rule. The opinion also does not resolve whether the sale of a good exhausts the rights to resale and use when the patent owner withholds the right to use.

III. Property Rules, Liability Rules and Pliability Rules

A. Calabresi and Melamed's View of the Cathedral

The decision-maker in a patent infringement dispute must consider both property rights (offering injunctive relief) and liability rules (offering damages) when assigning a remedy.[113] The field of patent remedies benefits from the highly influential 1972 article by Guido Calabresi and A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, which presented a novel framework integrating legal relationships typically analyzed in separate subject areas like property, torts and contracts.[114]

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110. F. Scott Kieff, Quanta v. LG Electronics*: Frustrating Patent Deals by Taking Contracting Options off the Table?*, 2007–08 CATO SUP. CT. REV. 315, 330; *see also* Monsanto Co. v. Scruggs, Misc. No. 900, 2009 U.S. App. LEXIS 11700 (Fed. Cir. May 4, 2009) (non-precedential order denying interlocutory appeal).

111. *Quanta*, 128 S. Ct. at 2114.

112. *See Monsanto*, 2009 U.S. App. LEXIS 11700, at *4 ("The district court denied the motion, explaining that the Court's decision in *Quanta* merely reaffirmed the proposition that the authorized sale of an article that substantially embodies a patent exhausts the patent holder's rights and did not undermine this court's decision in *Monsanto*. Noting, however, the 'wealth of persuasive authority which posits the opposite conclusion, e.g., that *Quanta's* [sic] holding on the doctrine of patent exhaustion is a substantial limitation on the rights of patent holders,' the trial court certified the order for interlocutory appeal.").

113. 35 U.S.C. §§ 283–284 (2006).

114. Calabresi & Melamed, *supra* note 20, at 1089–90 (applying *The Cathedral*'s framework to the pollutions problem and criminal sanctions). *The Cathedral*'s framework also has been applied to many other areas of the law, including those involving intellectual property. *See, e.g.*, Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655 (1994) (applying and critiquing *The Cathedral*'s framework to intellectual property rights). Far beyond just patent remedies, *The Cathedral* has been described as a "powerful example" of "scholarship that invents a new taxonomy or framework that has applications to many different legal fields." James E. Krier & Stewart J. Schwab, The Cathedral *at Twenty-Five: Citations and Impressions*, 106 YALE L.J. 2121, 2133 (1997) [hereinafter Krier & Schwab, *Citations and Impressions*]. "Calabresi and Melamed's contribution to the literature has had significant and ongoing, even increasing, influence." *Id.* at

Essentially, the advancement of *The Cathedral* comprises an explanation of entitlement enforcement, including allocation of entitlements and their protection. In the context of patent ownership and infringement, *The Cathedral*'s set of remedial choices available to courts can be described by four rules (applied here to patent infringement, rather than Calabresi and Melamed's tort context).[115] In a first entitlement choice, society values the patent owner's interest in excluding others from practicing his invention and grants to him, by statute, the entitlement to exclude others.[116] Under Rule 1, a court may enjoin an alleged infringer from practicing the invention — the patent owner's entitlement is protected by a property rule.[117] Under Rule 2, the court may condition the continued infringement on the alleged infringer's payment of damages to the patent owner — the patent owner's entitlement is protected by a liability rule.[118]

In a second entitlement choice, the entitlement is given to the alleged infringer to make, use or sell a good that embodies the patented invention, thus practicing the invention.[119] Under Rule 3, the court can

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2130. *See also* James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 440 (1995) [hereinafter Krier & Schwab, *The Cathedral in Another Light*] (describing *The Cathedral* as "perhaps the most widely known and influential contribution" to the field of law and economics based on the work of R. H. Coase). *The Cathedral* has been cited with increasing frequency and "figures regularly in books on subjects like Property, Torts, and Contracts, at the least." Krier & Schwab, *Citations and Impressions*, *supra*, at 2130. *See* Bell & Parchomovsky, *supra* note 23, at 4 ("*The Cathedral* is experiencing a renaissance as increasing numbers of preeminent scholars flock to reevaluate and improve upon Calabresi and Melamed's classic."). Within this framework, the government determines who receives an entitlement and how that entitlement is protected, including whether the owner may sell or trade the entitlement. Calabresi and Melamed define three categories of protection for entitlements: property rules, liability rules and inalienability. A property rule protects an entitlement "to the extent that someone who wishes to remove the entitlement from its holder must buy it from him in a voluntary transaction in which the value of the entitlement is agreed upon by the seller." Calabresi & Melamed, *supra* note 20, at 1092. A liability rule protects an entitlement whenever "someone may destroy the initial entitlement if he is willing to pay an objectively determined value for it." *Id.* An inalienable entitlement may not be transferred, at any price, between willing buyer and seller. *Id.* In the context of Coasean bargaining, the term "entitlement" can mean anything from the right to pollute to the right to exclude entry to one's real property. *Id*. *See* R. H. Coase, *The Problem with Social Cost*, 3 J.L. & ECON. 1, 4–6 (1960). In this Article, "entitlement" means the right to exclude others from making, using, selling, offering for sale, importing and exporting the patented invention — the right granted to a United States patent owner.

115. Calabresi & Melamed, *supra* note 20, at 1115–16. Calabresi and Melamed purposefully presented the framework as simple and elegant. *See* Guido Calabresi, *Remarks: The Simple Virtues of* The Cathedral, 106 YALE L.J. 2201, 2202 (1997); Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 YALE L.J. 2149, 2155 (1997). The four rules comprise a two by two matrix involving two entitlement choices for parties to a pollution tort. Either the polluter has the entitlement or the property owner has the entitlement. Under each entitlement choice, the rule may be either a liability rule or a property rule. Calabresi & Melamed, *supra* note 20, at 1116.

116. *Id.*

117. *Id.* at 1115–16.

118. *Id.* at 1115.

119. *Id.*

vindicate his right to practice the invention by assigning no liability for infringement — the alleged infringer's entitlement is protected by a property rule.[120] Under Rule 4, the court may allow the patent owner to pay the alleged infringer to stop practicing the invention — the alleged infringer's entitlement is protected by a liability rule.[121]

Apart from developing these descriptive rules, a more interesting account from Calabresi and Melamed presents normative questions regarding when and how these entitlements should be deployed and the advantages and disadvantages of doing so. Calabresi and Melamed recognized that, "in a world in which transaction costs were zero, where all disputes could be costlessly resolved,"[122] the Coase Theorem[123] would apply and the choice between liability rules and property rules would be irrelevant for allocational concerns.[124] Parties would repeatedly bargain to an optimal resolution; each asset would wind up in the hands of the party who valued it the most.[125] Given that transaction costs do exist, however, private ordering takes precedence over public ordering but with resort to legal intervention when it seems as though private bargaining might break down.[126]

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120. *Id.*

121. Calabresi and Melamed suggest that the fourth rule will be ignored — essentially, it acts as "a kind of partial eminent domain coupled with a benefits tax." Calabresi & Melamed, *supra* note 20, at 1116. The fourth rule may also result in "insuperable freeloader problems" in some contexts; in *The Cathedral*, many neighboring landholders would benefit from a reduction in pollution activity, but none would want to shoulder the burden of the payment. *Id.* Calabresi and Melamed suggest that distributional concerns may drive the selection of Rule 4 in some instances. *Id.* at 1119; *see* Spur Indus., Inc. v. Del E. Webb Dev. Co., 494 P.2d 700, 708 (Ariz. 1972) (ordering a noxious feedlot to relocate but requiring that residential developers indemnify the feedlot for reasonable relocation or shuttering costs). Interestingly, the *Spur Industries* court was not aware of *The Cathedral* and independently invented the Rule 4 solution in that case. *See* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 114, at 444–45. *But see* Richard A. Epstein, *A Clear View of* The Cathedral*: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2120 (1997) ("Rule 4 should disappear from the face of the earth.").

122. Epstein, *supra* note 121, at 2092.

123. *See* R. H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

124. *See* Epstein, *supra* note 121, at 2092.

125. When transaction costs are low, efficiency does not factor into an initial entitlement assignment. Indeed, a judge may initially assign the entitlement based on distributive justice or other such reasons, as Calabresi and Melamed discuss implicitly in *The Cathedral*. *See* Calabresi & Melamed, *supra* note 20, at 1092. *See also* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 114, at 448; Stewart Schwab, *Coase Defends Coase: Why Lawyers Listen and Economists Do Not*, 87 MICH. L. REV. 1171, 1195 (1989) (reviewing R. H. COASE, THE FIRM, THE MARKET, AND THE LAW (1988)) ("With zero transaction costs, initial entitlements cannot be justified on efficiency grounds, and so should be awarded on the basis of need or desert.").

126. *See* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 114, at 448–49. Coase also emphasized the role of the law in resource allocation and in private bargaining:

> [W]ith positive transaction costs, the law plays a crucial role in determining how resources are used. But it does more than this. With zero transaction cost, the same result is reached because contractual arrangements will be made to modify the rights and duties of the parties so as to make it in their interest to undertake those actions which maximize the value of production. With positive transaction costs,

The Calabresi and Melamed framework applied to polluters can be reconfigured to the context of patent infringement liability. Rule 1 (construed here as property rule protection of the entitlement to exclude others from practicing the invention) should be employed toward economic efficiency if a court believes that an alleged infringer could avoid or reduce the costs of infringement more cheaply than the patent owner.[127] If an alleged infringer is in a better position to balance the costs of infringement against the costs of not practicing the invention, the court should enjoin infringement. Rule 3 (construed here as property rule protection of the entitlement to practice the invention) should be employed toward economic efficiency if the opposite is true — the patent owner could avoid or reduce the costs of infringement more cheaply than the alleged infringer.[128] When a court knows for certain the identity of the cheapest cost avoider, it makes the correct initial entitlement choice and economic efficiency is preserved without transactions at all. Often, however, a court cannot predict the cheapest avoider of the cost of infringement.[129] If the court identifies the wrong cost balancer and the transaction is costless (or even very cheap) then the parties will bargain to an economically efficient result.[130] Wherever transactions between a patent owner and an alleged infringer are easy, and wherever economic efficiency is the goal, Calabresi and Melamed posit that courts should employ entitlements protected by property rules even though they are not sure that the entitlement has been initially assigned correctly.[131]

> some or all of these contractual arrangements become too costly to carry out . . . . What incentives will be lacking depends on what the law is, since this determines what contractual arrangements will have to be made to bring about those actions which maximize the value of production. The result brought about by different legal rules is not intuitively obvious and depends on the facts of each particular case.

R. H. COASE, *Notes on the Problem of Social Cost*, *in* THE FIRM, THE MARKET, AND THE LAW 157, 178 (1988). For Coase, "private ordering took place in the shadow of property rights endowments . . . . [*H*]*ow* this private ordering took place, and how the details of property rights affected the resulting contracts, did not concern him." Robert P. Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L.J. 1477, 1481 (2005).

127. *See* Calabresi & Melamed, *supra* note 20, at 1118.

128. *See id.*

129. *See id.* at 1119.

130. *See* Calabresi & Melamed, *supra* note 20, at 1118. If we entitled the alleged infringer to practice the invention, and the patent owner valued non-infringement more than the infringer valued practicing the invention, then the patent owner would pay the infringer to stop infringing even if there was no liability under Rule 3. If we entitled the patent owner to exclude others from practicing the invention under Rule 1, and the alleged infringer values practicing the infringement more than the patent owner values exclusion, then the alleged infringer would pay the patent owner for the right to practice the invention (take a license at the patent owner's price) or he could buy the patent owner's patent and sell it to someone who would grant him a more favorable license. Although unwarranted patent infringement may decrease demand for a patent owner's competitors, these losses are not part of a patent damages calculation.

131. *Id.* at 1110, 1118. Note that the entitlement might have important distributional effects. *Id.* at 1118.

Transactions will always have non-zero costs, however, and often very high costs, suggesting that a liability rule should be employed instead.[132] Consider a company that wishes to practice many patented inventions (for example, a complex electronic product). The company must obtain permission from each of these patent owners, which would be impossible due to transaction costs. If the patents are protected by a property rule, the company seeking freedom to operate may not be able to overcome the difficulty in obtaining all permissions. A liability rule allows the company to infringe the patents then compensate the patent owners with damages. If the value to the infringer of practicing the invention is greater than the cost of damages to the patent owners, a liability rule allows an efficient outcome that would not be possible under a property rule because of the transaction costs.[133] However, liability rules come with costs — the cost of collective valuation of damages to all parties, and the cost of forcing those who would not sell at the collectively determined figure.[134]

When transaction costs are substantial but asymmetrical, a property rule may remain a good choice.[135] Consider again many patent owners and one potential infringer. The potential infringer will not have difficulty buying out the patent owners (who perhaps agree on collective valuation) but the patent owners could have difficulty coming together to pay the potential infringer not to infringe (due to free-loader problems). In this case, a court should allocate the entitlements to the patent owners protected by a property rule — the patent owners will voluntarily accept the potential infringer's offer to buy the right to infringe instead of holding out.[136] If the court allocates the entitlement to the potential infringer, the patent owners would not be able to bargain for a result they collectively value more.

In sum, the conventional wisdom from *The Cathedral* was that "property rules outperform liability rules when disputes involve a small number of parties and the costs of identifying the relevant parties are low."[137] Richard Epstein has described what he considers the key economic consequence of Calabresi and Melamed's contribution to remedial choices:

> Because property rules give one person the sole and absolute power over the use and disposition of a

132. *See id.* at 1119–20.

133. This is the conventional view of liability rules — that liability rules make the most sense when high transaction costs are involved to prevent the parties from bargaining to the most efficient result. *See id.*

134. *Id.* at 1120.

135. *Id.* at 1119.

136. *Id.*

137. Bell & Parchomovsky, *supra* note 23, at 15; *see also* Krier & Schwab, *The Cathedral in Another Light*, *supra* note 114, at 451.

> given thing, it follows that its owner may hold out for as much as he pleases before selling the thing in question. In contrast, by limiting the owner's protection to a liability rule, that holdout power is lost, and in its stead the owner of the thing receives some right to compensation for the thing that has been taken away from him against his will.[138]

Epstein argues that liability rules should be limited to those circumstances in which property rules work poorly; for example, cases where entitlement owner's holdout power grows so overwhelming that he may block useful transactions by a wide range of strategic behaviors.[139] In these circumstances, the property rule fails, even though it is the preferred rule — "[t]he willingness to use a liability rule was only brought on by the necessity of the situation."[140]

The taxonomy provided by *The Cathedral* has been applied to patent disputes, usually to explicate the scope of a patent owner's

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138. Epstein, *supra* note 121, at 2091.

139. *Id.* at 2094. Permission to practice inventions in products that are already on the market is held by the patent owner and requires negotiation between the two competing parties. However, as Epstein notes, "the exact point between the two extremes cannot be determined in the abstract, so that the parties labor under strong incentives to hold out for the largest fraction of the gain." *Id.* A large portion of the surplus could be lost trying to make the bargain, or it could breakdown completely. This appears to be the same type of strategic behavior that Ayres and Talley found to suggest liability rules in thin markets. *See* Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement To Facilitate Coasean Trade*, 104 YALE L.J. 1027, 1038 (1995). Private information can be difficult to overcome when property rules are used. In thin markets, like the market for licensing technology where there are few buyers and sellers, self-interested bargainers tend to misrepresent their private valuations in order to capture a larger share of the "bargaining pie." With this incentive, buyers and sellers may delay (or pass on altogether) a mutually beneficial trade. When entitlements are divided, as Ayres and Talley describe an entitlement protected by a liability rule, the party with the entitlement has an incentive to reveal his preference for selling his portion or buying the other party's call option based on his valuation compared to the set liability rule compensation. For an argument that Ayres and Talley overstate people's strategic behavior, even in thin markets, and that property rules sufficiently facilitate bargaining without resort to liability rules, see Daphna Lewinsohn-Zamir, *The Choice Between Liability and Property Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEX. L. REV. 219 (2001) (observing that the economic assumption of extreme human opportunism is misguided, causing property rule bargains to be more effective than previously thought and liability rules more problematic).

140. Epstein, *supra* note 121, at 2107; Epstein describes the Roman law of merger, which dealt with the "inadvertent and irreversible" conflagration of the property of two or more individuals. *Id*. at 2106 (citing G. INST. 2.73–79 (Edward Poste trans., Oxford Univ. Press, 4th ed. 1904)); J. INST. 2.1.25–34 (Peter Birks & Grant McLeod trans., Duckworth 1987)). Epstein provides the example of a sculptor carving his own sculpture into a marble slab owned by someone else; a restitution remedy is not possible — either the owner of the slab or the sculptor has to surrender his portion without consent. Because the sculpture is unique in nature, a court might be inclined to give ownership to the sculptor, but it's apparent that the slab owner should also be compensated for losing his marble slab. *Id.* Epstein's necessity rule also encompasses the familiar situation of the dock owner who must cede access to his dock to a sailor who moors his boat during an emergency, but the sailor must pay for any damages that he may cause. *Id.* at 1029.

right to exclude.[141] Many scholars argue that intellectual property should be treated as a property right protected by a property rule in order to commercialize innovations.[142] When an entitlement is protected by a property rule, "[o]wnership concentrates on the owner the benefits of information developed about — and bets placed on — the value of the asset."[143] The non-rivalrous nature of patents may enhance this coordination advantage.[144] However, ex ante coordination under a property rule requires "shared and accurate information about the boundaries of legal rights" associated with the entitlement.[145] If those boundaries are unclear, the use of a resource cannot be coordinated without requiring information searches. One problem with applying a property rule to intellectual property, and particularly patents, is that the undefined boundaries of the claimed invention cause very high search costs with respect to determining the scope of the claims.[146] Calabresi and Melamed found this scenario, when market valuation of the patented invention has become unavailable or too expensive to determine, most appropriate for liability rule application.[147] A liability rule would further "facilitate[] a combination of efficiency and distributive results which would [have been] difficult to achieve under a property rule."[148]

B. Pliability Rules and Patent Implications

In *Pliability Rules*, Abraham Bell and Gideon Parchomovsky extended Calabresi and Melamed's static categories to capture the dynamic nature of our legal system by allowing for entitlements to change over time.[149] Bell and Parchomovsky describe pliability rules

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141. *See* Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 865 & n.115 (1990).

142. F. Scott Kieff, *IP Transactions: On the Theory & Practice of Commercializing Innovation*, 42 HOUS. L. REV. 727, 735–742 (2005).

143. Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1729 (2004).

144. Stewart E. Sterk, *Property Rules, Liability Rules, and Uncertainty About Property Rights*, 106 MICH. L. REV. 1285, 1293 (2007). Non-rivalrous goods, including information, may be used by simultaneous consumers without being used up.

145. *Id.* at 1288.

146. *Id.* at 1289 ("[T]he cost and social value of acquiring additional information about the scope of property rights should be relevant to a court in deciding between property-rule protection and liability-rule protection."). Within a property rule regime, the private value of the search to one potential infringer (i.e., an original equipment manufacturer) may exceed its high private cost to that potential infringer, but the social value of the potential infringer's continued operation may be less. Thus, the potential infringer may engage in inefficient expenditures to acquire information about the scope of his patent rights.

147. *See* Calabresi & Melamed, *supra* note 20, at 1110.

148. *Id.*

149. Bell & Parchomovsky, *supra* note 23, at 25–26. Bell and Parchomovsky point out that dynamic rules existed in practice before their writing. *Id.* at 26. Their work aimed to show the descriptive pervasiveness of such dynamic rules and to discuss the goals that pliability rule protection might serve. *Id.*

as combinations of property rules and liability rules, yet distinct from those rules.[150] Part of what sets apart the pliability rule is that it "contains within itself its own conditions for change."[151] Under a pliability rule, entitlement owners know how their protections will change over time, "and, therefore, [have] a truer appreciation of the nature of protection they enjoy at present."[152] Because pliability rules have distinct characteristics, they create a different set of incentives for entitlement owners than liability or property rules individually.[153]

As described below, for the purposes of intellectual property, and patent exhaustion in particular, relevant pliability rules include classic pliability rules and zero order pliability rules.[154] Classic pliability rules simply shift property rules to liability rules — the property rule provides a baseline that creates *in rem* rights in resources, encouraging optimal investment by property owners.[155] Once a triggering event occurs, the liability rule takes over and adapts to the changed circumstances.[156] Zero order pliability rules operate similarly — the triggering event causes a shift from a baseline property rule, but instead of switching to a liability rule with available compensatory damages, protection shifts to a liability rule with no compensation for breach.[157]

"[P]liability rules have distinct properties and a unique identity and course," which creates a different set of incentives.[158] Because of their mixed protection, pliability rules effect levels of investment somewhere between that of property rules and liability rules. Additionally, pliability rules sometimes offer the advantage of self-regulation, when the entitlement owner can trigger the switch from property rules to liability rules.[159] These characteristics suggest pliability rules appropriately describe many aspects of intellectual prop-

150. *Id.* at 27 ("While a pliability rule may appear as a property or liability rule at any given point in time, it is nevertheless ontologically distinct.").

151. *Id.*

152. *Id.*

153. *Id.* Bell and Parchomovsky identify six types of pliability rules commonly found in legal systems: (1) classic pliability rules, where property rules are transformed into liability rules; (2) zero order pliability rules, where property rules become liability rules with zero compensation for breach; (3) simultaneous pliability rules, where one entitlement owner has one type of rule protecting the entitlement with respect to some users, and a different type of rule protecting the entitlement with respect to other uses; (4) loperty rules, where the initial liability rules are transformed into property rules; (5) title shifting property rules, which move a property rule protected entitlement to another owner; and (6) multiple stage pliability rules, where the rule changes more than once. In each of these cases a change in circumstances triggers a change in the entitlement owner, entitlement protection or both. *Id.* at 30.

154. *Id.* (categories one and two).

155. *Id.* at 31.

156. *Id.* at 31–32.

157. *Id.* at 39.

158. *Id.* at 27.

159. *Id.*

erty law.[160] Pliability rules allow baseline protection of a patent entitlement to encourage investment and switch to liability protection to curb the social costs of patent protection.[161]

Bell and Parchomovsky recommend pliability rules in three situations: "(1) when policymakers anticipate substantially changed circumstances; (2) when competing interests must be accommodated in a single rule; and (3) when necessary to transcend the inherent limitations of property and liability rules."[162] Importantly, in each of these cases, pliability rules facilitate both planning and bargaining between entitlement holders and any potential acquirers.[163] In the context of patent licensing, planning and bargaining take on a crucial role.

IV. Patent Exhaustion Doctrine — A Pliability Rule

As described above, downstream purchasers of a patented article can avoid patent infringement liability by proving that the patent in suit was exhausted by an authorized sale of the patented good. A patented good consists of two inseparable property interests — a good, a tangible thing, and a patented invention, an intangible thing.[164] A patent owner holds a property interest in the patented invention by virtue of a valid patent. The owner of the good holds a property interest in it in the same way one holds title to a car. When the patent owner manufactures the patented good internally and retains ownership in both property interests, no conflict exists and his patent rights are not extinguished. He may exclude others from making, using, selling, importing and exporting the patented invention by controlling his property interests without disposition.

When the patent owner sells, or licenses another to manufacture and sell, goods that practice the invention, the sold goods become the personal property of a third party. A conflict arises as to how to best allocate distinct and inseparable interests.[165] On the one hand, a patent entitlement should encourage the patent owner to invest his resources and effort into research, development and commercialization of tech-

160. *Id.* at 39–51 (describing the expiration of patents and copyrights, genericism in trademark law and fair use in copyright law in terms of pliability rules).

161. *Id.*

162. *Id*. at 66.

163. *Id.*

164. This Article assumes, for simplicity's sake, that one property interest in the dual-nature patented article is a physical embodiment of the patented invention, but it should be obvious that some inventions, such as computer software algorithms, may be patented and not represented by any physical manifestation when sold. Although the requirements for patentability are that the algorithm be claimed with a machine, this often may be sold separately. *See In re* Bilski, 545 F.3d 943 (Fed. Cir. 2008).

165. The patent rights and the patented good embodying the patent can be analogized to sculpture and slab of marble described by Epstein, *supra* note 140.

nology. However, the patented article should also be free to find its highest-valued user in the market.

When a patent owner seeks to enforce his right to exclude others from using or selling the patented invention embodied in a patented good that has left his possession, a court distills the problem to one of allocating and protecting one entitlement — the right to exclude others from practicing the invention. The patent owner would like to hold this entitlement and have it protected by a property rule such that the good's owner (also the accused infringer) must buy it from him at his stated price or else be enjoined from using and selling the good.[166] The good's owner, on the other hand, would like to continue to use and sell it in the ordinary course of his business. Facing facts like these, courts adopted the patent exhaustion doctrine to control when a patent owner's entitlement to practice the patented invention gives way to the purchaser's entitlement to the productive use and resale of the tangible object embodying the patented invention.[167]

A. Unrestricted Authorized Sales — Zero Order Pliability

Given that under the patent exhaustion doctrine the patent owner relinquishes his right to seek infringement remedies, the doctrine can be best described as a zero order pliability rule. An authorized sale by the patent owner or his licensee triggers a shift from property rule protection of the right to exclude others from practicing the invention to liability rule protection. This sale shifts the remedies of infringement for that item from Rule 1 to Rule 2 in Calabresi and Melamed's taxonomy and also reduces compensatory damages due to the patent owner to zero.[168] Patent infringement of this particular sold good will carry zero damages for the remainder of its useful life.[169]

Courts have been willing to apply this zero order pliability rule (although not by this name specifically) to eliminate remedies for practicing the invention with patented articles that have been: (1) sold by the patent owner with broad, unrestricted authorization (such as when one buys a television from an electronics store) or by a licensee

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166. *See* Calabresi & Melamed, *supra* note 20, at 1092.

167. *See* Adams v. Burke, 84 U.S. (17 Wall.) 453, 456–57 (1873).

168. *See generally* Calabresi & Melamed, *supra* note 20.

169. *See* Bell & Parchomovsky, *supra* note 23, at 39–44. The patent exhaustion doctrine operates in the same manner as expiration of the patent, except it occurs not twenty years from the filing of the application but at the moment of the authorized sale of the purchased article from the patent owner or his licensee. The exhaustion applies only to the physical good, mooting any question as to whether the right to exclude others from making the invention is exhausted — the patent owner can still exclude the purchaser from making a new thing. *See supra* note 43 and accompanying text. This question becomes relevant when the good is self-replicating. The Federal Circuit has held that the right to exclude others from manufacturing an article is not exhausted by the authorized sale of a self-replicating article such as plant seed. *See* Monsanto Co. v. Scruggs, 459 F.3d 1328 (Fed. Cir. 2006).

with a blanket license to make, use and sell (such as when computer makers buy processors from Intel); and (2) sold under license restrictions found unnecessary for the patent owner to collect an appropriate award (such as resale price restrictions, territorial restrictions and tying restrictions).[170] The rationale in *Adams v. Burke* remains influential to courts today:

> [I]n the essential nature of things, when the patentee, or the person having his rights, sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use. The article, in the language of the court, passes without the limit of the monopoly. That is to say, the patentee or his assignee having in the act of sale received all the royalty or consideration which he claims for the use of his invention in that particular machine or instrument, it is open to the use of the purchaser without further restriction on account of the monopoly of the patentees.[171]

The *Quanta* opinion reiterates the Court's long-standing directive that patent exhaustion be applied broadly in cases of clear and unrestricted authorization.[172] In *Quanta*, the license provided a broad grant of authority to make, use and sell the patented articles at issue. The Court found that, regardless of any post-sale restriction distributed with the patented article, the patent owner gave up his entitlement to exclude others from practicing the patented invention with the processors sold under the license.[173] When the licensee sold them in a market for such goods, the processors were distributed without legal restriction by the patent owner despite the notice that purchasers were not licensed directly under the patents.[174] Since his licensee's sales

170. *See, e.g.*, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (sold by licensee with blanket license); Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917) (tying sale to unpatented good); Bauer & Cie v. O'Donnell, 229 U.S. 1 (1913) (resale price restriction).

171. *Adams*, 84 U.S. (17 Wall.) at 456.

172. *Quanta*, 128 S. Ct. at 2115.

173. *Id.* at 2121–22. Of course, after determining an authorized sale had taken place, the Court must then determine whether the sold component at issue was an essential feature of the invention claimed in the patent to exhaust the patents applied downstream. *See* United States v. Univis Lens Co., 316 U.S. 241, 249 (1942).

174. *Quanta*, 128 S. Ct. at 2121–22. The Court seemed unconvinced by LGE that the notice in question placed a condition on the sale of the goods from Intel to Quanta. Under one theory, the Court hesitated to find a condition when the license from LGE to Intel was a separate writing from the agreement to provide the notice. *Id*. at 2119. Under another theory, the Court attempted to overrule *Mallinckrodt* to hold post-sale restrictions generally unenforceable in patent law. *See id.* at 2121–22 . Under yet another theory, the Court distin-

were unrestricted, the patent owner could not restrict the use of the patented goods sold by his licensee and practiced with other components.[175] The patent owner's entitlement to exclude others, once protected by a property rule before sale, was now protected by a liability rule. Moreover, the Court determined that the liability damages paid by the alleged infringer for practicing the patent without a license should be zero.[176] In other words, when a customer licenses to make, use and sell the processors, the patent owner has been adequately compensated for the sale and use of his patented goods, even in combination with other non-patented components.

From an entitlements standpoint, the rule shift observed in the standard exhaustion case, approved by courts from *Bloomer* (1853) to *Quanta* (2008), removes the entitlement holder's ability to exercise property rule protection of his right to exclude others upon an authorized sale.[177] Despite the zero order pliability rule, "no third party may gain a superior right to that of the original entitlement holder."[178] This is important because property rule protection in the first stage guarantees the patent owner a return on his investment in useful inventions and provides an incentive to the patent owner to plan his economic rents in the first stage; demand for downstream sales and uses of his product should inform this planning.[179] Once the patent owner sells the article, the rule shifts to a liability rule in order to better accommodate the changed circumstance of third-party ownership. Conflict between the physical property owner's interests and the patent owner's interests may be better resolved with a zero order liability rule — the patented good owner has no fear of infringing the patent and the patent owner collects his fair reward from the sale of the good itself.

The exhaustion of the patent owner's rights with respect to the patented good is efficient and fair to patent owners and the public because it provides a bright-line rule that terminates the owner's property rule protection upon an authorized sale. This limits a patent owner's power to extract further economic rents from downstream users and sellers.[180] The second stage of the zero order pliability rule, removing the patent owner's demand for compensation from down-

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guished between the legal effect of notices applied by a patent owner and notices applied by a licensee with respect to patent remedies. *See id.* at 2122 n.7.

175. *Id.* at 2122. Again, this is true provided that the article in question is an essential feature of the claimed invention, as required by *Univis*. *See Univis*, 316 U.S. at 249.

176. *See Quanta*, 128 S. Ct. at 2122.

177. *See* Bell & Parchomovsky, *supra* note 23, at 39.

178. *Id.*

179. *See* Andrea Shepard, *Licensing To Enhance Demand For New Technology*, 18 RAND J. OF ECON. 360 (1987).

180. *Id.* at 363. Such rents may be unwarranted when the patent owner parts with the good and yet continues to use the patent to obtain revenue from downstream sellers and users who would otherwise not be able to use or sell the goods they purchased.

stream users and sellers,[181] may promote freer use of the goods in commerce and may eliminate personal property inalienation concerns or strategic pricing by the patent owner to extract most gains from trade through threatened litigation.

A mandatory zero order pliability rule, such as the termination of patent rights upon expiration of the statutory term, guarantees unrestricted access to information goods once the property protection ends.[182] By allowing the patent owner to benefit from the right to exclude until his rights expire, the zero order pliability rule strikes a balance between the patent owner's private interest in commercialization and the public's interest in promoting progress and disseminating technology.[183]

In the context of patent exhaustion, we are less concerned about public access to information than we are about the dissemination of technology. In markets for patented goods, unauthorized infringers increase the market output and decrease the market price.[184] In contrast, authorized purchasers do not have a direct effect on output because they do not manufacture the patented good, they merely purchase it on the open market.[185] However, active secondary markets for durable patented goods may decrease market price. Concerns about the patent owner's inability to recoup his investment may not arise when he continues to control production. The patent owner (or a licensee) commercializes the invention by negotiating a license for the production of the article, and signaling what he perceives to be the optimal distribution scheme for achieving economic rents.[186] It seems reasonable to believe that his incentives to control production and to extract profits from his patents are not reduced meaningfully by adopting liability rule protection after the goods are sold.[187]

181. Although theoretically possible that the patent owner would desire to enjoin the downstream purchaser from using or selling the patented good, it seems unlikely that a patent owner's threat of injunction is anything but posturing to gain leverage. The patent owner has already authorized the manufacture and sale of the good.

182. Bell & Parchomovsky, *supra* note 23, at 39.

183. The optimal length of patent term may be unknowable. LANDES & POSNER, *supra* note 32, at 297.

184. Ian Ayres & Paul Klemperer, *Limiting Patentees' Market Power Without Reducing Innovation Incentives: The Perverse Benefits of Uncertainty and Non-Injunctive Remedies*, 97 MICH. L. REV. 985, 993 (1999).

185. The presence of downstream purchasers and secondary markets uncontrolled by the patent owner may increase demand for the patented good such that the patent owner and his licensees increase production to meet demand.

186. *See* F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 719–20 (2001) (noting the possibility that research tools such as gene fragments present the interesting case where demand explodes before commercialization has been accomplished, and that this may explain the worry over anticommons problems in research tool markets).

187. Importantly, as Carol Rose has suggested, the initial property rule protecting the patent owner's entitlement in the patented invention, in defining rights and identifying rights holders, "encourage[s] individual investment, planning, and effort." Carol M. Rose, *The*

Importantly, assuming a frictionless environment (low or no transaction costs), the way in which the patent owner structures the royalty rate, or where he chooses to collect his economic rents, does not impact social welfare.[188] This is intuitive because the intermediate prices among the patent owner, the upstream purchaser, and the downstream purchaser will simply adjust to reflect the change in royalty rates at each level. For example, suppose the patent owner sells patented widgets to an upstream purchaser for $10 each. The upstream purchaser then sells the widgets to downstream purchasers at a price of $15, and the downstream purchaser pays the patent owner a license fee of an additional $5 per widget. The downstream purchasers will have a total cost of $20 to pass along to customers. On the other hand, if the patent owner cannot charge the downstream purchasers the additional license fee because his rights are exhausted under a zero order pliability rule, he will charge the upstream purchaser $15. The upstream purchaser will pass this along to the downstream purchaser for a price of $20. Thus, Coasean bargaining will occur, and the rule of protection is irrelevant.[189]

Of course, no royalty structure is frictionless. However, when the sale is authorized and without condition, courts have uniformly agreed that no liability attaches for patent infringement for downstream sales or uses of the patented invention.[190] Once the patented goods are sold, transaction costs hinder bargaining between the patent owner and downstream purchasers. Courts seem to recognize that it is advantageous to remove liability for infringement by shifting the rule.[191]

Shadow of The Cathedral, 106 YALE L.J. 2175, 2187 (1997). The patent owner loses property rule protection of his entitlement only after he decides to collect revenue or other consideration, either through license or sale, in exchange for the good embodying his patented invention.

188. Anne Layne-Farrar, George Llobet & A. Jorge Padilla, *An Economic Take on Patent Licensing: Understanding the Implications of the "First Sale Patent Exhaustion" Doctrine* 8–9 (Feb. 9, 2010), http://works.bepress.com/anne_layne_farrar/7 (last visited May 8, 2010).

189. *See id.* at 9.

190. *See, e.g.*, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008); Mitchell v. Hawley, 83 U.S. (16 Wall.) 544, 548 (1872); Bloomer v. McQuewan, 55 U.S. (14 How.) 539, 551–54 (1852).

191. Layne-Farrar et al. argue that additional transaction costs cause the division of allocation "to reflect the cheapest and most convenient way to implement licensing, which is bound to differ across firms, industries, and sectors of the economy." Layne-Farrar et al., *supra* note 188, at 11. They suggest that a strict application of the patent exhaustion doctrine — a zero order pliability rule applied in all cases, not just the simple authorized case — could create economic inefficiencies. The solution, however, may not be to have the doctrine always "overturned by explicit clauses of patent licensing" as they recommend — a default rule — but rather, to have a mandatory but flexible liability rule in a second stage that takes into account compensatory damages at non-zero levels under some conditions. *See id.* at 11–12; *infra* Part IV.

B. Restricted Authorized Sales — Inconsistent Switching

Interestingly, when the sale or license is restricted, courts employ pliability rules in some cases and not in others.[192] Although *Mallinckrodt* has been criticized for approving all post-sale restrictions,[193] the opinion identifies some limitation, at least in theory — post-sale restrictions outside of the patent owner's right to exclude do not prevent the triggering of a zero order pliability rule.[194] Conventional wisdom holds that a patent owner can avoid the zero order pliability rule by restricting the sale or the license in a way that is reasonably within the boundaries of his right to exclude others from practicing the patented invention.[195] For example, resale price restrictions cannot prevent the shifting of the entitlement protection from a property rule to a zero order pliability rule because a patent's scope of exclusion does not include the right to "keep prices up and prevent competition by notices restricting the price at which the article may be resold."[196] Until 2006, resale price agreements were per se anticompetitive, a policy reflected in the patent cases involving exhaustion.[197] It follows from this view that the harm from such price restrictions is so great that it should be assumed to restrain trade, and courts should therefore refuse to enforce such restrictions in patent law.[198]

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192. *See supra* Part II.A.2. *Compare* Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 124 (1938) (finding infringement when buyer used purchased amplifiers), *with* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917) (finding that patent holder could not limit use of machine after sale).

193. *See, e.g.*, James B. Kobak, Jr., *Contracting Around Exhaustion: Some Thoughts About the CAFC's* Mallinckrodt *Decision*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 550, 559, 562–63 (1993). Kobak takes issue with the broad language of the opinion as a departure from precedent, and suggests that the opinion, by making post-sale restriction enforceable in patent infringement case, will uniquely advantage patentees and "create more problems that it solves" especially with respect to "over-reaching by patentees" in the form of restrictive notices on patented goods.

194. Mallinckrodt Inc. v. Medipart Inc., 976 F.2d 700 (Fed. Cir. 1992).

195. *Id.* at 709. *Quanta* did not change this general concept. However, by not addressing the issue of post-sale restrictions, or *Mallinckrodt* at all, *Quanta* casts doubt on the continued vitality of both.

196. Bauer & Cie v. O'Donnell, 229 U.S. 1, 17 (1913).

197. *Id.* The Supreme Court recently reversed course to apply a rule of reason analysis to determine the competitive effect of resale price maintenance agreements. *See* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877, 885–87 (2007). Although the Patent Act, first enacted in 1790, precedes the Sherman Act by one hundred years, patent law and antitrust law are often seen at odds with each other because patents are characterized as anticompetitive due to the patent owner's right to exclude others from making, using, and selling the patented invention. The right to exclude incurs social costs by restricting competition for the patented article. Therefore, it remains reasonable to believe that price restrictions are not considered within the patent owner's right to exclude as a matter of patent law, regardless of antitrust treatment.

198. *See, e.g.*, United States v. Univis Lens Co., 316 U.S. 241, 252–54 (1942); Straus v. Victor Talking Mach. Co., 243 U.S. 490, 500–01 (1917). Because the antitrust standard for resale price maintenance is now a rule of reason, *see Leegin*, 551 U.S. at 885, a restriction, not actionable in patent law, may not violate the Sherman Act because it does not, on balance, have anticompetitive effects. Post-*Leegin*, it is less clear that, as older cases suggest,

Restrictions tying the sale of a patented article to a non-patented article also do not prevent shifting to a zero order pliability rule upon an authorized sale of the patented article.[199] These types of restrictions have been held to be not within the scope of the patent grant — "the scope of the grant which may be made to an inventor in a patent, pursuant to the statute, must be limited to the invention described in the claims of his patent."[200] *Motion Picture Patents* declared that any rights the patent owner may have to control the restriction of unpatented materials to be used with the patented article must be gained through the general law from ownership of the machine, not from the patent law, "which allows a grant only of the right to an exclusive use of the new and useful discovery which has been made[] — this and nothing more."[201]

Similarly, interstate territorial restrictions do not prohibit a shift to a zero order pliability rule upon an authorized sale of the patented article. Although a patent owner can grant territorial rights in his entitlement, a lawful purchaser in one territory may travel to another territory and use and sell the patented good without liability for infringement to the patent owner.[202] The patent owner's right to restrict the use or sale of his good to persons in other territories is not challenged, but once the purchaser lawfully possesses the patented good, courts appear to favor the possessory interest and free travel across borders without encumbrance.[203]

In contrast to these pre-sale restrictions, when the patent owner utilizes a post-sale restriction, following *Mallinckrodt*, courts do not apply a zero order pliability rule; rather, the patent owner retains property rule protection of her entitlement and may pursue infringe-

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exhaustion applies as a matter of patent law to make resale price restrictions unenforceable, regardless of their viability under the Sherman Act.

199. Restrictions tying the sale of a patented article to a non-patented article have been rendered unenforceable in patent law since 1917. *See* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917). Congress specified that tying is not patent misuse absent a showing of market power on the part of the patent owner, in other words, absent antitrust liability. *See* 35 U.S.C. § 271(d). For this reason, the lasting legacy of *Motion Picture Patents* may be bound to the fate of Jefferson Parish Hospital No. 2 v. Hyde, 466 U.S. 2 (1984) (holding tying agreement to be per se anticompetitive). In United States v. Microsoft Corp., the District of Columbia Circuit refused to affirm a lower court's per se ruling, based upon *Jefferson Parish*, on the issue of tying Internet Explorer with Microsoft Windows — the court found the rule of reason more appropriate when the tied product and the tying product are technologically interconnected. 253 F.3d 34, 89–92 (D.C. Cir. 2001) (en banc).

200. *Motion Picture Patents*, 243 U.S. at 511.

201. *Id.* at 513.

202. *See* Mitchell v. Hawley, 83 U.S. (16 Wall.) 544, 548 (1872); *see also supra* note 59 and accompanying text.

203. *See, e.g.*, Hobbie v. Jennison, 149 U.S. 355 (1893); Adams v. Burke, 84 U.S. (17 Wall.) 453 (1873). Unlike the domestic cases of *Hobbie* and *Adams*, a patent owner who makes an authorized sale with no restrictions in a foreign country has not exhausted any domestic rights. *See Mitchell*, 83 U.S. (16 Wall.) at 548. A discussion of the intricacies of international exhaustion rules and their ramifications is beyond the scope of this Article.

ment remedies against downstream purchasers who violate the restriction.[204] Likewise, when the patent owner restricts a license to manufacture and sell to a particular field of use, courts also maintain property rule protection and allow infringement claims against purchasers who knowingly violate the restrictions of the license.[205]

C. Scope of the Patent Grant Dispositive

In determining whether the patent owner's entitlement to exclude others is protected by a property rule or a liability rule, courts look to whether a condition is within the scope of the patent grant.[206] If this is the case, two problems may arise in this analysis: (1) defining the scope of the patent grant is difficult and expensive; and (2) because defining the scope of the patent grant is difficult, the patent owner may manipulate this scope by manipulating the claim language or license restrictions.

First, determining whether any given restriction is reasonably within the scope of the patent grant is not possible in practice. A patent grant describe the boundaries of the claimed invention,[207] and it also consists of the general right to exclude others from "mak[ing], us[ing], sell[ing], offer[ing] to sell, or . . . import[ing]" the patented invention.[208] Therefore, one could argue that "scope of the patent" does not just encompass limits involving the *claims* of the patent, but *any* limit on the right to use, sell, make, or import. As such, any limit, including those as silly as selling only on Tuesdays (relating to the right to sell) or using only on Tuesdays (relating to the right to use) would restrict the sale or license such that any sale would not trigger a pliability rule.[209] This interpretation cannot explain why resale prices,

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204. *See* Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700 (Fed. Cir. 1992). Contract remedies may also be available if the post-sale restriction is enforceable in contract law. One court has described *Quanta* as overruling *Mallinckrodt*. *See* Static Control Components, Inc. v. Lexmark Int'l, Inc., 615 F. Supp. 2d 575, 585–86 (E.D. Ky. 2009). However, even if the notice in *Quanta* comprised a post-sale restriction of the sort that the Federal Circuit found enforceable in patent law in *Mallinckrodt*, it could still be argued that post-sale restrictions simply cannot be enforceable in patent law when instituted by a licensee and not the patent owner. Interestingly, this is the opposite of the defendant's argument in *Mallinckrodt*. The defendant argued that post-sale restrictions would not prevent exhaustion when placed on products by the patent owner, but would prevent exhaustion when applied to licensees. *Mallinckrodt*, 976 F.2d at 705.

205. *See* Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 124, 127 (1938).

206. United States v. Gen. Elec. Co., 272 U.S. 476, 489 (1926) (noting that the patentee may impose on the licensee "any condition the performance of which is reasonably within the reward which the patentee by the grant of the patent is entitled to secure").

207. 35 U.S.C. § 112, para. 2 (2006) ("The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.").

208. 35 U.S.C. § 271(a).

209. *See* Kobak, *supra* note 193, at 561. In fact, the Federal Circuit in *Mallinckrodt* defined a reasonable restriction as one that merely relates to the subject matter of the patent.

territorial divisions and tying requirements are considered to be outside of the scope of the patent grant and thus trigger a zero order pliability rule.

Instead, one could argue that the restriction must be related to the elements of the claims of the patent to be within the reasonable reward. This would introduce early-stage claim construction determinations, which impose steep judicial administrative cost to the affirmative defense of patent exhaustion.[210]

Second, determining the scope of the patent grant with respect to conditions on sale may lead to strategic manipulation of either the claim language or the restrictions drafted by the patent owner in order to avoid exhaustion. With regard to claim language, the patent application process offers the applicant the opportunity to draft his own claims and to amend his initial claims over time. For example, if an inventor creates a novel widget, he may claim this widget alone. If the inventor restricts his license so that a licensee may only sell widgets tied to unpatented things, this license restriction could be considered outside his patent grant (his claim covering the widget, not the unpatented thing). However, if the inventor adds another claim covering a widget in operation with an unpatented thing, which is allowed by the Patent and Trademark Office,[211] the inventor could plausibly argue that his license restriction to sell only widgets with the unpatented things is within the scope of his patent grant.

Quanta helps illustrate this point as to the drafting of license restrictions. Although the license at issue failed to avoid the exhaustion doctrine, the Justices identified the poor drafting that created the ambiguity with respect to license condition and post-sale restriction:

> Chief Justice Roberts: Well, I understand your position to — to acknowledge that they could have structured the sale to Intel in such a way as to achieve the same result that you're saying is so bad under the patent laws.
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> . . .

976 F.2d at 709. Under this formulation, any restriction on use or resale could reasonably be within the scope of the patent award. Kobak notes that this is "precisely the point made and rejected, with respect to articles once sold, by *Adams v. Burke*." Kobak, *supra* note 193, at 561 (discussing Adams v. Burke, 84 U.S. (17 Wall.) 453 (1873)).

210. A court decides how to construe patent claims as a matter of law. The meaning given to the claims governs further proceedings in the case. *See* Markman v. Westview Instruments, Inc., 517 U.S. 370, 387 (1996). Often, a court will hold a *Markman* hearing to address disputes of claim construction. If the affirmative defense of patent exhaustion must address these matters, then the extensive *Markman* hearing, and associated discovery in support, will likely occur early in the litigation.

211. *See* Robin Jacob, *Side Bar: Objectionable Narrowness of Claim*, *in* F. SCOTT KIEFF, ET AL., PRINCIPLES OF PATENT LAW, *supra* note 33, at 1121.

> Justice Stevens: Are you saying that this case would come out differently if instead of just requiring a notice that the — the item should only be used on Intel products, that had been a condition of the license? If the license itself said you may manufacture and sell to only people who agree to use the product exclusively with Intel products?
>
> . . .
>
> . . . The big key is what is an authorized sale? And I'm asking you if the — if the license agreement to the — to Intel had said you may only sell to people who agree to use the products on the patentee's products, that then would — and they did otherwise, they didn't get — then it would not have been an authorized sale?[212]

If the patent owner can sell his patented goods and retain property rule protection simply by manipulating the license grant, in this instance, the law might create a group of systematic winners and losers based not on the grant of the patent, per se, but the relative bargaining positions of the patent owner and his licensees or downstream purchasers. For example, in *Quanta*, Intel (the licensee) had sufficient bargaining power to demand and obtain a blanket license, giving in to LGE's demands for notice restrictions of dubious enforceability on downstream purchasers.[213]

Suppose, however, a small company seeks to license LGE's patents to manufacture processors in order to compete with Intel. The

212. Transcript of Oral Argument at 6, 25–26, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (No. 06-937), *available at* http://www.supremecourt.gov/oral_arguments/argument_transcripts/06-937.pdf. Maureen Mahoney, counsel for Quanta, argued that if the license were worded the way that Justice Ginsberg suggested, then when a patented component is sold to a non-licensed user, Intel would be contributing to that user's infringement by virtue of the sale and would be liable for contributory infringement under 35 U.S.C. § 271(c). Of course, Justice Ginsberg asked why the license had not been drafted this way. Speculating due to the lack of record on this issue, Mahoney suggested it was because Intel would not agree to purchase such a limited license thereby incurring the risk of exposure for contributory infringement. *Id.* at 7–8. Thomas Hungar, then Deputy Solicitor General, argued on behalf of the United States as amicus curiae, supporting Quanta and urging a reversal of the Federal Circuit.

213. LGE used its patents on processing to leverage a deal with Intel for the use of Intel technology in LGE electronics. *See* Minebea Co. v. Papst, 13 F. Supp. 2d 35, 44 (D.D.C. 1998). Intel may have agreed to the notice restrictions because it gambled that such restrictions would be found enforceable to prevent exhaustion from occurring as to its customers. Alternatively, perhaps Intel agreed to such notice restrictions because Intel itself preferred to use the notices to discourage the downstream purchasers from using the licensed components with non-Intel components, knowing that Intel would not be liable for infringement in any event due to the blanket license.

small company might not be able to negotiate (or afford) a blanket license, and instead may accept a restricted license of the sort suggested by Chief Justice Roberts and Justice Stevens in *Quanta*.[214] When the patented goods are not sold or used in accordance with the restriction, the patents are not exhausted and the small company's licensees may be subject to an infringement action from LGE. Moreover, as in *Quanta*, licensees or downstream purchasers may not have the patent portfolios to leverage licenses for themselves with LGE.

D. A Modest Pliable Proposal

The patent exhaustion doctrine invites courts to classify restrictions based on category (e.g., field-of-use, territorial and price), resulting in an inconsistent body of case law holding that some restrictions trigger the exhaustion doctrine while others do not. I propose that restrictions should be classified based on entitlement, not category. In order to shift this judicial inquiry, courts should characterize the exhaustion doctrine as a pliability rule — shifting patent protection from a property rule to a liability rule when the patent owner or his licensee makes an authorized sale of a good embodying the patent. Under this proposal, the sale of a patented good puts it into the stream of commerce and the entitlement protection always shifts from a property rule to a liability rule. Additionally, property rule protection will remain in place before the sale in order encourage investment and coordinate efforts for commercialization. By limiting the rule to the particular good sold, the disadvantages of liability rules are minimized and result in no windfall to downstream purchasers.[215]

A defendant who purchased the patented article may plead patent exhaustion as an affirmative defense to avoid liability for patent infringement claims brought by a patent owner. In order to succeed with this defense, the defendant must first apply the test in *Univis* to demonstrate that the patented article comprises the essential features of the owner's patented invention.[216] If the patented article comprises the essential features and has no non-infringing uses, the patent owner cannot collect further royalty.[217] "Whether the licensee sells the pat-

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214. *See* Transcript of Oral Argument at 6, 25–26, *Quanta*, 128 S. Ct. 2109 (No. 06-937) *available at* http://www.supremecourt.gov/oral_arguments/argument_transcripts/06-937.pdf.

215. Brief of Various Law Professors as Amici Curiae in Support of Respondent at 12–13, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

216. *See* United States v. Univis Lens Co., 316 U.S. 241, 250–51 (1942).

217. When the Court describes a component has having "no non-infringing uses," this means that "the only use to which it could be put and the only object of the sale is to [allow the purchaser to practice the invention]." *Univis*, 316 U.S. at 249. This replicates the test for contributory infringement — the court must ask whether the article sold would contribute to infringement by the downstream purchaser when he uses or sells the article. *Id.* It is beyond the scope of this Article to recommend alternatives to the general framework provided by

ented article in its completed form or sells it before completion for the purpose of enabling the buyer to finish and sell it," the sale of the article to the purchaser transfers an entitlement to practice the invention with respect to that article.[218]

In either case, the patent owner has voluntarily parted with his right to exclude others from practicing the invention with that article, and has received in the purchase price "every benefit . . . which the patent law secures to him."[219] If the patented article does not comprise the essential features of the patented invention, or has other noninfringing uses, then exhaustion should not apply and a property rule should continue to protect the patent owner's entitlement. This determination may be done by the court with or without a claim construction analysis, depending on the facts of each case.[220]

If the sold article comprises the patented invention, or embodies the essential features of the patented invention, then the court must determine whether the sale was authorized by the patent owner. The simplest case involves the sale of the article without restriction by the patent owner. In this case, a property rule no longer protects the entitlement; protection has shifted to a liability rule. In accordance with our traditional doctrine of exhaustion, the court should award zero damages under the liability rule, as though the patent has expired with respect to this article. Any subsequent use or sale is outside the reach of the patent law.[221] Similarly, when a licensee receives a license from the patent owner to make, use or sell the patented article without limitation or condition and the patented article is sold by the licensee, a zero order pliability rule operates to preclude patent infringement liability for any future use or sale of the article.[222] These results are the same under this proposal as under the current doctrine.

Univis and confirmed in *Quanta*. Provided that some similar function is used to discern mere components from complete inventions, the proposal here is agnostic toward how this is determined. For further exploration of the contributory infringement analysis, see Osborne, *Coherent View*, *supra* note 83, at 675–78 (proposing that exhaustion occur only for components that are patentably indistinct from the patented invention) and Osborne, *Justice Breyer's Bicycle*, *supra* note 83 (arguing that the contributory infringement statute, 35 U.S.C. § 271(c) (2006), prevents any contracting around the exhaustion doctrine).

218. *Univis*, 316 U.S. at 252.

219. *Id.*; *see Quanta*, 128 S. Ct. at 2119 (applying the rule from *Univis* where the court held that "exhaustion was triggered by the sale of the lens blanks . . . because they 'embodie[d] essential features of [the] patented invention.'"); Carbice Corp. of Am. v. Am. Patents Dev. Corp., 283 U.S. 27, 34 (1931); Leeds & Catlin Co. v. Victor Talking Mach. Co., 213 U.S. 301, 33233 (1909).

220. When the parties dispute the definition of the claimed invention, claim construction as a matter of law is advised. *See, e.g.*, Minebea Co. v. Papst, 444 F. Supp. 2d 68, 168–69 (D.D.C. 2006) (conducting claim construction to establish that the sold article embodied essential features of the patent for exhaustion purposes). If the court can ascertain the plain meaning of the claims, or if the parties do not dispute the meaning of the claim terms, this threshold test can be met without a claim construction hearing.

221. *See* Adams v. Burke, 84 U.S. (17 Wall.) 453, 456 (1873).

222. *Quanta*,128 S. Ct. at 2121.

1. Troublesome Restrictions Revisited

a. Licensing Another Seller

Firms and courts alike have long expected that a violation of a license restriction may be enforced through patent infringement actions against the licensee or the purchaser.[223] Accepting this view yet remaining skeptical about its legal authority,[224] I propose that authorized sales of patented goods should trigger a shift in protection from a property rule to a liability rule regardless of category of license or sale restrictions. The court would be able to award compensatory damages to the patent owner but would be restrained from granting injunctive relief even when the patent owner licensed a third party to manufacture and sell the patented article.

The license grant would determine whether the court would award positive compensatory damages or zero damages. If the license granted *all* of the rights of the patent, then a zero order pliability rule would apply — the patent rights would be exhausted with respect to the sold good and the patent owner would receive nothing by way of compensation from the downstream purchaser. If the license restricted what rights are granted to the downstream purchaser, then a court would have to determine whether the licensee and his purchaser are operating within the license. If so, the court should award zero damages because the sale was authorized and the patent rights are exhausted.[225] If the licensee acted outside the license, following *General Talking Pictures*, the licensee would have infringed the patent by making the sale, and the purchaser would be a direct infringer if he used or resold the article.[226] A patent owner may threaten a patent infringement suit for enforcement of the patent against this purchaser, and the court should allow such claims. However, the court should limit recovery to monetary damages as compensation for the practicing of the invention without permission.

The equitable remedy of injunctive relief would continue to be unavailable in order to better balance the interests of the patent owner and the licensee or downstream purchaser.[227] When a patent owner restricts his licensees and the patented invention remains protected

(finding that exhaustion applied, and thus zero order pliability rule triggered, because blanket license did not restrict licensee's right to use or sell the patented goods).

223. *See* Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 124, 127 (1938).

224. In *General Talking Pictures*, Justice Black was skeptical about the enforceability of license restrictions on licensees and purchasers. *See id.* at 132–33 (Black, J., dissenting).

225. *See Quanta*, 128 S. Ct. at 2122; Keeler v. Standard Folding Bed Co., 157 U.S. 659, 666 (1894).

226. *See Gen. Talking Pictures*, 305 U.S. at 127.

227. Even if a patent owner sought injunctive relief, he could also bring a patent claim for damages. Thus, the court may still award treble damages or attorney fees in an exceptional case. *See* 35 U.S.C. §§ 284, 285 (2006).

under a property rule, the patent owner effectively mandates that his license be enforced by specific performance unless he agrees otherwise.[228] This is beyond the scope of the patent grant and should not be allowed.

Rather, it makes more sense to have the patented article protected by a liability rule in which the purchaser is free to enjoy his possessory interest in the patented article upon payment to the patent owner commensurate with the rights granted in the license. By removing the threat of injunction in this circumstance, the patent owner has less ability to extract unreasonable gains and a greater incentive to bargain with licensees and downstream purchasers. Unlike a property rule, a liability rule would allow courts to determine appropriate compensation for unlicensed uses by considering the contribution of the patented invention to the patented article, the restrictions in the license and any payments under the license already made to the patent owner. Of course, this may result in additional judicial assessment costs. However, the patent owner might fear that, under a liability rule, a court would inaccurately assess damages or tend to sympathetically favor purchasers. These concerns may make the patent owner more willing to negotiate a deal that reflects the true value of excluding others from practicing the patented invention. This contrasts with the strategic manipulation that may inure under a property rule. Under my proposal, a patent owner who sought to capture all of the gains in trade from his license would be able to benefit from field-of-use restrictions but would not be able to threaten to enjoin the downstream purchasers. A licensee may be willing to accept such a restricted license if the price of the license to sell encumbered articles is lower than a blanket license.[229]

b. Post-Sale Restrictions

When the patent owner or his licensee sells the patented article with a post-sale restriction, I propose that courts should preclude patent infringement liability for violations of the post-sale restriction. In other words, courts should characterize the sale of the good with the restriction as an authorized sale that triggers liability rule protection, and award the patent owner zero damages for violations of the restriction.

In many cases, the post-sale restrictions prohibit activity that would be an infringement of the patent even absent the restriction. For

228. *See* Thomas S. Ulen, *The Efficiency of Specific Performance: Toward a Unified Theory of Contract Remedies*, 83 MICH. L. REV. 341, 368–69 (1984) (discussing remedies for breach of contract in terms of efficient breach and the Calabresi & Melamed framework of integrated theory of remedies).

229. *See* Brief of Respondent at 50, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

example, in *Mallinckrodt*, the patented medical device may have been improperly reconstructed during the refurbishment process, a "making" of a new device that would have constituted infringement by the refurbisher.[230] Using the "new" devices would have constituted infringement by the downstream hospitals that purchased the reconstructed devices, regardless of restriction.[231]

Other post-sale restrictions, such as those involving prices or tying arrangements for unpatented products, can be considered generally anticompetitive. Price restrictions have a long history of unenforceability in these cases; applying a zero order pliability rule should not change any expectations on the part of patent owners. Tying restrictions that attempt to limit a purchaser's use to certain unpatented articles may have a more beneficial provenance. For example, restrictions requiring use with another component provided by the patent owner may be used as a metering mechanism to allow the patent owner to price discriminate. However, as held in *Motion Picture Patents*, the owner of a patent cannot extend the scope of its patent grant by means of a post-sale restriction as to use with another non-patented article.[232] "The patent law furnishes no warrant for such a practice and the cost, inconvenience and annoyance to the public which the opposite conclusion would occasion [sic] forbid it."[233]

It should not alter the court's analysis with respect to the pliability rule when a licensee places a post-sale restriction upon a patented good under obligation by the patent owner. Consistent with *Quanta*, when the patent owner has placed no restrictions on the licensee, a purported restriction by the licensee to a downstream purchaser creates a zero order pliability rule.[234] The licensee stands in the shoes of the patent owner with regard to exploiting the patent grant through sales, and presumably the patent owner has collected from the licensee an appropriate rent.

230. *See* Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 709 (Fed. Cir. 1992).

231. *See id.* A restriction would simply restate the patent owner's rights under traditional patent law. *See* Cotton-Tie Co. v. Simmons, 106 U.S. 89, 90–91 (1882).

232. Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 516 (1916).

233. *Id.* Understandably, others may disagree about whether post-sale restrictions, including those involving price or the tying of unpatented articles, are anticompetitive or outside the scope of exclusion guaranteed by the patent grant. This Article does not focus in the abstract on the merits of these restrictions, but on the switch from property rule to liability rule protection upon the sale of the article. It may be reasonable to award some positive level of compensatory damages under the post-sale liability rule that enhances profit distribution to the patent owner, but this effect would merely be distributive and would not increase the surplus in the markets in which the patented goods are sold. A zero order pliability rule encourages downstream purchasers to use and sell the goods without the chilling effect of the risk of losing profits to the patent owner. Moreover, nothing would prevent the patent owner from seeking contract remedies from purchasers for violations of post-sale restrictions.

234. *Quanta*, 128 S. Ct. at 2121.

c. The Patented Combination

The essential features test identified in *Univis* and confirmed in *Quanta* serves a preliminary gate-keeping function to determine which products sold by the patent owner or his licensee could be exhausted by any particular patent being asserted by that patent owner.[235] Because this analysis is important, I do not propose changes to the essential features test, reserving for another day the question of whether this test could be replaced by a more precise one referencing the Court's precedent regarding contributory infringement.[236]

2. Separating the Right To Sell and the Right To Use

One mysterious piece of the exhaustion puzzle involves the division of the right to sell and the right to use: whether customers of a licensee with only the right to make and sell must pay the patent owner for the right to use purchased patented articles. Although details of many licensing schemes are not available publicly, in a brief supporting LGE in *Quanta*, Qualcomm, Inc., the world's largest provider of wireless chipset technology for mobile phones, explained its royalty structure in support of LGE's position.[237] Qualcomm grants licenses to chipset manufacturers to make and sell, but not use, chipsets practicing their patented inventions, requiring in the license that the manufacturers sell chipsets only to customers who obtained a license to use from Qualcomm separately. Handset manufactures obtain a license from Qualcomm to use the chipsets, and assemble handsets using chipsets purchased from the licensed chipset manufacturers.[238] Qualcomm believes its patent rights to be exhausted only once handsets are sold from the handset manufacturers to mobile carriers, who in turn sell the handsets to customers for use as mobile phones.[239] At this point, the rights to sell (obtained from the chipset manufacturers) and the rights to use (obtained from the handset manufacturers) join.

Not surprisingly, this royalty scheme, which appears legal under *General Talking Pictures* and *Quanta*, has been met with resistance from handset manufacturers who purchase chipsets manufactured by or under license from Qualcomm, and pay an additional royalty per unit to incorporate the chipset into the handset.[240] Qualcomm has ar-

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235. *Id.* at 2119–20; United States v. Univis Lens Co., 316 U.S. 241, 251 (1942).

236. *See* Osborne, *Coherent View*, *supra* note 83, at 675–78.

237. *See* Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent at 2223, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (No. 06-937).

238. *Id.* at 89. Each of the licenses features an upfront payment and a running royalty that is a certain percentage of the net selling price of each unit sold. I have simplified the licensing scheme here, but the analysis would not change in addressing the real one.

239. *Id.*

240. Robert Anderson & Chris Nuttall, *Nokia Steps Up Battle over Chipset Royalties*, FIN. TIMES (London), May 25, 2007, at 24. Nokia let its license with Qualcomm expire in

gued that this is simply its reward for innovation.[241] If Qualcomm's patent portfolio includes patents directed toward the incorporation of the chipset into the handset, and the chipset is not an essential feature of the mobile device, then the essential features test does not apply, and Qualcomm could license the chipset manufactures to make, use and sell the chipsets and still collect revenue from handset manufacturers who incorporate the chipset.

Instead, Qualcomm separates the selling right and the using right in order to charge a royalty to the handset manufacturers. Why Qualcomm does so is clear — the handset selling price is at least one, and sometimes two, orders of magnitude larger than the chipset selling price.[242] Therefore, if Qualcomm collected a royalty only as a percentage of the chipset selling price, it would lose a large amount of revenue tied to sales of handsets incorporating the chipset.[243] Qualcomm argues that the exhaustion doctrine should not apply to a patented article, like the chipset, sold by a manufacturer with no license to use the patented article on the grounds it is within its patent rights to so license, and if it had to charge the chipset manufacturers for the entire amount of the revenue it collects from handset manufactures, the price of chips would be astronomical.[244]

There are several troubling aspects to this royalty structure, legal or not, that arise from property rule protection of Qualcomm's patent rights. First, all third generation ("3G") wireless telephony standards use Qualcomm's patented code-division multiple access ("CDMA") technology.[245] Thus, as 3G increases in popularity, Qualcomm may

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2007 without renewal amid complaints about excessive royalties, waging several battles in patent courts and the European Union competition courts before settling with Qualcomm in July 2008, not long after the *Quanta* opinion was released. *See* Don Clark, *Qualcomm-Nokia Settlement May Augur Wider Peace*, WALL ST. J., July 25, 2008, at B7.

241. *See* John W. Miller, *EU Steps Up Probe of Qualcomm: Patent-Fee Case May Prove Crucial for Other Industries*, WALL ST. J., Oct. 2, 2007, at A6 (quoting Andrew Gilbert, President of Qualcomm Europe).

242. The chipset is capable of many functions but manufactured uniformly and cheaply. The handset, in order to tap into any given function of the chipset, must be adapted for that functionality — e.g., media display, music playback, camera function. Therefore, the value placed on these functions by the purchasing public is exploited at the handset level, not the chipset level. *See* Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent at 2223, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

243. *Id.* Additionally, one could speculate that Qualcomm uses its overall licensing revenue collectively to boost reasonable royalty damage calculations in its ongoing infringement cases with competitors. For an excellent related discussion of patent infringement damages and incentives to innovation, see Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307 (2006).

244. Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent at 23, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

245. *Id.* at 2–6. For an extensive discussion of Qualcomm's business model and the history of its development of CDMA for 3G and future technology, see DAVE MOCK, THE QUALCOMM EQUATION (2005). Qualcomm leads the 3G chipset industry with 29.4% market share in 2009. Joyce Huang, *Battling for the Brains of Cellphones*, FORBES ASIA, Nov. 19,

threaten to enjoin all CDMA devices sold without its authorization, creating bargaining power over many handset manufacturers, who must both license the technology and purchase the separate right to use the chipsets themselves, even if purchased from Qualcomm.[246] By using its bargaining power to segregate the selling and using rights under its patents in this fashion, Qualcomm sidesteps the essential features analysis required by *Univis* and *Quanta*, the application of which would prevent Qualcomm from collecting revenue at two steps in the supply chain.[247]

Suppose Qualcomm's patent portfolio includes patents directed toward the incorporation of the chipset into the handset but the chipset is not an essential feature of the mobile device. *Univis* would not apply[248] and authorized sales of the chipsets would not exhaust the patents. Qualcomm could license the chipset manufactures without restriction (all sales being authorized) and still collect revenue from handset manufacturers who incorporate the chipset on the basis of the patents. Qualcomm would not need to undergo the additional expense of licensing and enforcing use separately. If, on the other hand, Qualcomm's patent portfolio includes patents for which the chipset *is* an essential feature with no non-infringing uses, exhaustion would apply under *Univis*. Therefore, licensing and enforcing use separately, despite questionable legality after *Quanta*, appears to be the only way for Qualcomm to charge a royalty to the handset manufacturers.

Assuming that the chipsets were an essential feature of the patents because otherwise the scheme rationally would not be implemented, collection of royalties on handsets is not a reward for the unique patented invention — the chipsets.[249]

Qualcomm and other technology leaders who expend substantial resources on research and development may collect economic rents from sales of chipsets and licensing to other manufacturers. On balance, protecting these patent rights with a pliability rule, rather than

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2009, at 40. Importantly, as providers upgrade networks and more subscribers purchase phones capable of 3G interoperability, Qualcomm's may continue to increase over time.

246. For one competitor's allegations regarding Qualcomm's market power, misuse of its patent rights and licensing of technology in violation of the "fair, reasonable and non-discriminatory" agreement to license other members demanded by the standard-setting body in exchange for approval of the CDMA standard, see *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007).

247. *See supra* Part II.A.3 for a discussion of the essential features test.

248. Such patents would not be exhausted by a sale of the chipsets because the chipsets would not embody the essential features of the patented invention. Namely, the incorporation of the chipsets and the handsets provides the inventive feature, not the chipsets themselves — they would be a mere component, as LGE argued unsuccessfully in *Quanta* on different facts. *Quanta*, 128 S. Ct. at 2120.

249. It may be the case that Qualcomm desires price discriminating between expensive handsets using their chipsets and inexpensive handsets using their chipsets. However, given patented technology directed toward the chipset, it is not clear whether their patents give them the right to do so.

strong property entitlement protection, may reduce wastes of resources.

Under my proposal, when a downstream purchaser refuses to license the right to use, the patent owner may seek patent damages by suing the purchaser for infringement. However, the patent owner would be limited to compensatory damages, which courts would set by taking into account the essential features test, the portion of the product represented by the patented article, industry standardization effects and the benefit provided to the patent owner in the form of demand for its patented article due to sales of end products. The risk that a court would award a lower royalty may cause the patent owner to approach downstream purchasers with more negotiable licensing terms that may facilitate quicker resolution of claims.

3. Practical Implications of the Proposal

The *Quanta* case highlights a particular kind of surprise and hold up within the semiconductor industry, not by non-practicing companies from outside (sometimes derogatively known as "patent trolls"), but by companies like LGE and Qualcomm within the production chain itself.[250] The additional dynamics of business relationships and cross licensing within this industry suggest that the patent exhaustion doctrine can be an effective policy tool to reduce the incentive for patent owners to hold up downstream owners without losing a profit incentive for innovation. By characterizing the doctrine as a pliability rule that shifts entitlement protection upon an authorized sale, courts can use compensation awards, including awards of zero damages, to facilitate bargaining between upstream patent owners and downstream purchasers. Notably, as courts award compensation in damages for downstream license or sale restriction violations in the exhaustion context, parties may be more willing to approach the bargaining table rather than await a court decision. This characterization may, in turn, promote competition between patent owners, who compete for the same downstream purchasers, i.e., end product manufacturers.

In *Quanta*, LGE sought to negotiate a patent peace with Intel, but wanted to prevent smaller manufactures, those who buy and assemble components for others, from obtaining the same peace upon purchasing the same goods from Intel — LGE preferred that those manufacturers negotiate their own peace separately and initiated over 70 separate lawsuits to that end after negotiating the Intel settlement.[251] These smaller manufacturers did not have the large patent portfolios that would enable them to negotiate a deal with Intel, nor did they

250. *See* Brief Amicus Curiae of Computer & Communications Industry Association in Support of Petitioners at 13, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

251. Petition for a Writ of Certiorari at 4, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

have the resources to litigate LGE's patents to the fullest. Therefore, many of these firms settled for an inexpensive license from LGE for the patents that cover the same products they purchase from Intel, effectively paying twice for the same patented invention.[252]

If property rule protection could be maintained by clever contracts of the patent owner, the cross licenses that develop to solve the patent thicket problem in certain industries would allow participating firms to keep the patent peace with resource-rich large firms like Intel while still pursuing small resource-poor downstream purchasers who can be shaken down for licensing revenue.[253] Consumers who purchase a fully assembled product may even face the risk of liability as a result of this division of patent rights.

Normatively, there are several arguments as to why the patent owner's right to exclude should be limited by the patent exhaustion doctrine once the patent owner sells a patented article. First, if a downstream customer is sued for infringement, the existence of an original license between the patent owner and the seller of the goods may suggest to a court or jury that the downstream purchaser knew of the patented goods and the potential for infringement. Such knowledge may give rise to a charge of willful infringement, which would allow an award of treble damages and attorney's fees, in accordance with the court's discretion.[254] Accordingly, a patent law-based pliabil-

252. Layne-Farrar et al. argue that this is not "double dipping" because the royalty scheme would generate the same amount of revenue regardless. *See* Layne-Farrar et al., *supra* note 188, at 36. This may not be true in practice because of transaction costs, as Layne-Farrar et al. point out. A broader objection to their argument against "double dipping" might be that, in some cases, it is harder to ascertain why the patent owner can and should collect the value of his patented invention as a percentage of sales of an expensive item that features a cheap component, when the component is the essential feature of the patent. Notably, this is precisely what *Univis* aims to avoid. *See* United States v. Univis Lens Co., 316 U.S. 241, 251 (1942). If the component is not an essential feature of the patent, then the exhaustion doctrine does not prevent the patent owner from collecting a royalty downstream regardless. As a result, a patent owner with patented component technology may be forced to charge more at the upstream level without the ability to collect royalties at the downstream product level (as Qualcomm suggests). Brief of Qualcomm Incorporated as Amicus Curiae in Support of Respondent at 22–23, *Quanta*, 128 S. Ct. 2109 (No. 06-937). However, in such instances, the higher price of the component may attract entrant manufacturers of non-infringing components, thus enhancing competition and reducing price in the component market. Because entry will not be immediate, the patent owner may collect supracompetitive prices in the component market in the interim.

253. For a explanation of the patent thicket problem, see Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard Setting*, *in* INNOVATION POL'Y & THE ECONOMY 119 (2000). (Adam Jaffe, Joshua Lerner & Scott Stern eds., 2000).

254. 35 U.S.C. §§ 284, 285 (2006). Patent damages may be trebled for willfulness and attorneys' fees awarded to the prevailing party in exceptional cases. *In re* Seagate Technology, LLC, 497 F.3d 1360, 1368 (Fed. Cir. 2008) (en banc). Overruling prior precedent in *Seagate*, the Federal Circuit held that "proof of willful infringement permitting enhanced damages requires at least a showing of objective recklessness." *Id.* at 1371. In the case of downstream purchasers facing patent infringement claims from patent owners, purchasers who are aware of the patent and nonetheless violate a sale or license restriction placed upon

ity rule with a second stage liability rule and the possibility of an action sounding in contract eliminates not only the threat of an injunction, but also the use of willfulness as a sword against downstream purchasers for treble damages and attorneys' fees. By setting a more realistic level of compensation for practicing the patented invention embodied in the patented article, as described *infra*, a court may facilitate bargaining between the parties to come to an efficient exchange, rather than the purchaser succumbing to threats or engaging in expensive persuasive litigation.

Second, reducing patent infringement remedies against the downstream purchaser may also encourage competition in the market for end products.[255] Protecting patent rights in purchased goods with a liability rule could result in certain, possibly zero, damage awards contingent on current licensing practice. Potential entrants in the downstream market would be able to better assess risks and costs of entry.[256] In doing so, there may be increased competition at the downstream level, putting pressure on the intermediate price to upstream producers of components. If patent owners cannot extract what they perceive to be a just award from initial first sale to licensed upstream producers, then perhaps patent owners will vertically integrate with those upstream producers. This could reduce prices to the end product market, a benefit for consumers.[257]

The shift from a property rule to a liability rule would also finally clarify the default rule versus immutable rule distinction made by amici briefs in *Quanta* and ignored by the Court.[258] Because the exhaustion doctrine determines enforceability of patent license and sale restrictions,[259] it has sometimes been characterized as a default rule that the parties may bargain around, and sometimes as an immutable rule that the parties cannot bargain around.[260]

In contrast, the proposed immutable pliability rule should be a mandatory rule that allows for the flexibility to award compensation to the patent owner when necessary. In determining whether to assign zero or positive damages under the post-sale liability rule, courts would look to how the patent owner may have contracted for distribu-

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a downstream good may be "act[ing] despite an objectively high likelihood that its actions constituted infringement of a valid patent." *Id.*

255. *See* Shubha Ghosh, *Carte Blanche,* Quanta *and Competition Policy*, 34 J. CORP. L. 1209 (2009) (describing the exhaustion doctrine as informed by norms of competition).

256. For a similar argument on the facts of *Quanta*, see Brief of Dell Inc. et al. as Amici Curiae in Support of Petitioners at 4, *Quanta*, 128 S. Ct. 2109 (No. 06-937).

257. Damien Geradin, Anne Layne-Farrar & A. Jorge Padilla, *The Complements Problem Within Standard Setting: Assessing the Evidence on Royalty Stacking*, 14 B.U. J. SCI. & TECH. L. 144, 145–46 (2008).

258. *See supra* note 13 and accompanying text.

259. *See supra* Part II.A.

260. *Compare* Brief of Various Law Professors as Amici Curiae in Support of Respondent at 5, *Quanta*, 128 S. Ct. 2109 (No. 06-937), *with* Ghosh, *supra* note 255, at 1229–34.

tion and use of the patented good. Thus, the fact that injunctive relief will be unavailable to the patent owner should not meaningfully reduce his ability to extract rents from his patent to the full extent possible. He likely will be able to maintain some type of price discrimination through a downstream licensing scheme protected by a liability rule — although an injunctive remedy is no longer available, a purchaser in violation of a license restriction may still owe positive damages to the patent owner, depending upon the license restriction at issue. To avoid the risk of courts improperly assessing compensation with regard to these positive damages, the parties may engage in bargaining to put the patented article and its enjoyment into the hands of the party who value them the most.

To the extent that a pliability rule describes what occurs in most non-litigated cases, articulating the test in this manner will help nudge along those cases where bargaining has not occurred. When a case pitting a patent owner against a purchaser of a patented article ends up in court, there is reason to believe that the parties have failed at bargaining for one reason or another. A patent owner generally does not seek to prevent his patented articles from moving in commerce. Instead, the bargain has likely failed because the patent owner desired to move the article in some specified way (restrictions on use), by some specific owner (customer control restrictions), at some price, or within some territory. These restrictions do not promote the innovation-related goals of the patent system.

Moreover, this view of the patent exhaustion doctrine seems in line with another recent Supreme Court ruling eliminating mandatory injunctions in patent cases.[261] In *eBay*, the Court held that when the patent holder is a non-manufacturing licensor, an entitlement to prevent others from practicing the invention does not need property rule protection. As Justice Kennedy notes in *eBay*, modern patent licensing cases lead to the conclusion that patent owners are interested in patents not to preclude competition but to create revenue streams based on licensing.[262] When this is the case, we should not reward that patent owner with a property rule, because then he is not promoting the goals of the patent system but simply gaining leverage for his licensing bargaining.

By removing the injunctive remedy and shifting to a liability rule, patent owners would have reduced leverage over downstream purchasers. This would allow the downstream purchaser to acquire that remedy at a cheaper price, perhaps reducing the threat of downstream litigation used solely to persuade downstream purchasers to take out

261. eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 390–94 (2006).
262. *Id.* at 395–96 (Kennedy, J., concurring).

licenses.[263] By shifting the patent owner's economic focus back to the decision of whether to manufacture or license the manufacture of his patented articles, a pliability rule in all circumstances forces the patent owner to plan his economic rents in advance and consider the competitive landscape in his market.

V. CONCLUSION

As with other recent Supreme Court patent jurisprudence,[264] *Quanta's* hint toward an immutable patent exhaustion doctrine reveals a surprising movement toward a nineteenth century concept of patent law jurisprudence — "common sense" transcending a patent owner's entitlement.[265] By disciplining patent owners to consider their royalty structure ex ante and requiring exhaustion through authorized sales, the Court may have introduced an equitable element to modern patent law that expands beyond the narrow margins of patent misuse.[266]

In recent years, the Court has allowed licensees to challenge the validity of patents without first breaching the license,[267] reshaped the Federal Circuit's formal test for obviousness into a more intuitive test,[268] removed the presumption of market power in patent tying cases[269] and admonished that irreparable harm must be shown in order to obtain injunctive relief for patent infringement.[270] In each of these

263. *See* Reiko Aoki & Jin-Li Hu, *Licensing vs. Litigation: The Effect of the Legal System on Incentives to Innovate*, 8 J. ECON. & MGMT. STRATEGY 133, 13435 (1999) (discussing the idea of persuasive litigation meant not to gain remedies of injunctive relief or damages but to induce licensing).

264. *See* KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007).

265. *See id.* at 420.

266. Patent misuse, an equitable affirmative defense, prevents enforcement of patents that have been misused by their owners to gain an anticompetitive edge beyond the grant of their patent. Obviously, because the scope of the patent grant is implicated, similar questions arise under the exhaustion doctrine, in particular with regard to price maintenance, tying and use restrictions. When the conduct in question is not per se unlawful under the Supreme Court's antitrust jurisprudence, the defendant has to show that the patent owner "impermissibly broadened the physical or temporal scope of the patent grant," and that the conduct had an "anticompetitive effect." Virginia Panel Corp. v. MAC Panel Co., 133 F.3d 860, 868 (Fed. Cir. 1998) (quoting Windsurfing Int'l, Inc. v. AMF, Inc., 782 F.2d 995, 1001 (Fed. Cir. 1986)) (internal citations omitted). The Patent Act was amended to specifically prohibit misuse from being used as a defense in claims for infringement arising out of the tying of an unpatented article and other licensing schemes used by patent owners, provided the patent owner does not have market power. 35 U.S.C. § 271(d) (2006). As a result, the contours of the patent misuse defense are near to those of antitrust liability now that market power cannot be presumed from patent ownership. *See* Ill. Tool Works Inc. v. Indep. Ink, Inc., 547 U.S. 28 (2006).

267. *See* MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118, 130–31 (2007).

268. *See KSR*, 550 U.S. at 415–20.

269. *See Ill. Tool Works*, 547 U.S. at 46.

270. *See* eBay Inc. v. MercExchange, LLC, 547 U.S. 388, 391–94 (2006). *But see* i4i Ltd. P'ship v. Microsoft Corp., 670 F. Supp. 2d 568, 599–600 (E.D. Tex. 2009) (finding irreparable harm and enjoining infringement), *aff'd*, 598 F.3d 831 (Fed. Cir. 2010) (affirming entry of the permanent injunction but modifying its effective date).

cases and in *Quanta*, the Court appears to be contracting the scope of the patent owner's reward in order to balance societal expectations — not just expectations with regard to the advancement of innovation, but also expectations of fairness and justice in the public interest.

Characterizing the patent exhaustion doctrine as a pliability rule can help to predict outcomes in cases with a fair and manageable bright-line rule. The patent owner remains capable of exploiting his patent entitlement until he sells it embodied in a tangible form, after which the owner of the patented good directs its use and sale in commerce. In the case of field-of-use restrictions, because a strong expectation has arisen that violated restrictions constitute patent infringement, in applying the second stage pliability rule, a court may award damages to the patent owner to compensate for the reasonable violation of the restriction. The patent owner would not be able to enjoin the use or sale of the goods, however. In all cases, the patent owner would be free to pursue available contractual remedies.[271] This proposal will ensure that patent owners have less incentive to pursue expensive litigation against customers of licensees or downstream users who have purchased the patented article, and will have more incentive to bargain with licensees in a way that reflects their perceived true value of the entitlement to exclude others from practicing the invention.

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271. Contractual remedies may include specific performance, if applicable. *See* Eli Lilly & Co. v. Emisphere Techs., Inc., 408 F. Supp. 2d 668, 688 (S.D. Ind. 2006) (citing HAROLD EINHORN, PATENT LICENSING TRANSACTIONS § 1.03 [1], at 1–36, n. 19 (2004)). An equitable award of specific performance in such cases may be rare, but not in conflict with the proposal herein. Such a remedy would be granted in light of equitable principles to address harm caused by the breach of contract, not as a matter of patent law.