POST-SALE RESTRAINTS AND COMPETITIVE HARM: THE FIRST SALE DOCTRINE IN PERSPECTIVE

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INTRODUCTION: SOURCES OF LEGAL POLICY TOWARD VERTICAL RESTRAINTS

This Article examines one particular question at the intersection of competition policy and intellectual property (IP) doctrine: are there sufficient reasons within either IP policy or competition law for treating post-sale restraints on patented or copyrighted goods differently from those on other goods? This Article also considers whether we should treat restraints contained in license agreements that do not involve a technical sale differently from those contained in other types of contracts.[1]

The term "post-sale restraint" refers generically to any restriction imposed by a seller on how a purchased good can be used or resold after the initial sale. In the context of the term "post-sale restraint," "sale" includes leases, licenses, or other transfers of interest short of a technical sale. The differences among these various types of transfers can be decisive in legal policy. For example, IP law's "first sale" doctrine applies only to true sales, as does the antitrust law of resale price maintenance. By contrast, "tying" law applies to sales, leases, and licenses without significant differentiation. Despite these legal distinctions, differences in the type of transfer are typically unimportant for understanding the fundamental economics of post-sale restraints, although they can be in some instances, such as where product durability is a problem for the monopolist.[2] In 2008 the Supreme Court decided an important post-sale restraint case involving patents and a form of quasi-exclusive dealing.[3] At this writing, an equally divided Supreme Court has

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1. On the use of such restraints in copyright licenses, see Christina Bohannan, *Copyright Preemption of Contracts*, 67 MD. L. REV. 616 (2008).

2. *See infra* notes 182–89 and accompanying text.

3. Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008).

affirmed another first sale decision involving copyrights and resale price maintenance.[4]

In antitrust, the relevant law is that of vertical restraints, sometimes called "restricted distribution" or "vertical restrictions."[5] Vertical restraints are typically classified as "intrabrand" or "interbrand." An intrabrand restraint limits the way a seller's own product can be distributed or used. The classic example is resale price maintenance (RPM), in which the seller of a product stipulates its resale price.[6] There are also intrabrand nonprice restraints, which might, for example, limit the locations in which downstream parties can resell the product, segregate commercial from noncommercial users,[7] or specify in detail the conditions under which a product may be resold. Most field of use restrictions in patent law are intrabrand restraints.[8] By contrast, an interbrand restraint limits either the purchaser's ability to use the product with things produced by other suppliers, or a reseller's ability to sell the goods of other sellers. The most common interbrand restraints are tying and exclusive dealing. A tying arrangement requires that the purchaser of a "tying" product (say, a printer) use it exclusively with that seller's own "tied" product (ink).[9] Exclusive dealing forbids a reseller han-

4. Omega S.A. v. Costco Wholesale Corp., 541 F.3d 982 (9th Cir. 2008) (holding that copyright's statutory first sale doctrine did not apply to good that was manufactured outside United States but that bore design registered in United States Copyright Office; infringement defendant allegedly sold watch at lower price than that which plaintiff had stipulated in license), *aff'd by an equally divided court*, 131 S. Ct. 565, No. 08-1423, 2010 WL 5058406 (U.S. Dec. 13, 2010) (Kagan, J., not participating).

5. On vertical restraints under the antitrust laws, see PHILLIP E. AREEDA, EINER ELHAUGE & HERBERT HOVENKAMP, ANTITRUST LAW ch. 17 (2d ed. 2004) (tying); PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ch. 16 (3d ed. 2010) (intrabrand restraints); HERBERT HOVENKAMP, ANTITRUST LAW ch. 18 (2d ed. 2005) (exclusive dealing).

6. Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373, 408 (1911) (resale price maintenance per se unlawful under antitrust laws), *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007) (applying rule of reason).

7. *See, e.g.*, ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1449–50 (7th Cir. 1996) (software licensing agreement distinguishing commercial and noncommercial users).

8. *See, e.g.*, Ethyl Gasoline Corp. v. United States, 309 U.S. 436, 456–59 (1940) (resale price maintenance); Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 124, 126 (1938) (limitation to noncommercial uses). Field of use restrictions can also facilitate horizontal market division. *See, e.g.*, Hartford-Empire Co. v. United States, 323 U.S. 386, 400 (1945).

9. *See, e.g.*, Ill. Tool Works, Inc. v. Indep. Ink, Inc., 547 U.S. 28, 45–46 (2006) (refusing to condemn printer-ink tie after upsetting judicially created presumption that patent in tying product conferred market power); Henry v. A.B. Dick & Co.,

dling the seller's product from also dealing in the competing product of any rival. For example, a Ford dealership might be forbidden by its franchise contract to sell new cars made by rival manufacturers.[10]

Throughout their legal history, vertical restraints have been controversial, and their effects on competition and welfare have proven notoriously difficult to assess. A purely vertical restraint does not eliminate competition between rivals or reduce the number of firms in any market. Nor does it make any firm larger.[11] As a result, the twin concerns of competition policy, collusion and dominant firm exclusion, are often hard to identify. In some cases vertical restraints may channel or restrict future development in ways that restrain innovation.[12] On the other side, long-term vertical contracting typically reduces firms' costs, and IP restraints are essential devices for enabling firms to share risk or to enhance the sharing of technology. More generally, vertical restrictions are a very important compromise between unrestricted market transactions and vertical integration through ownership. They permit business entities to have some of the advantages of the market-displacing mechanisms of the business firm but without all of the costs that outright ownership entails.[13]

224 U.S. 1, 35–36 (1912) (refusing to apply first sale rule to post-sale tying condition), *overruled by* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917); *see also* Erik Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Antitrust Harm*, 52 ARIZ. L. REV. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443284.

10. *See, e.g.*, Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 636–38 (2008) (refusing to enforce post-sale restraint forbidding purchasers from combining goods with parts not made by Intel); United States v. Dentsply Int'l, Inc., 399 F.3d 181, 191–96 (3d Cir. 2005) (condemning arrangement under which monopoly manufacturer of dental materials forbade dealers from selling rivals' goods). The classic antitrust decision is *Standard Oil Co. of California v. United States,* 337 U.S. 293, 314 (1949) (condemning oil refiner's restraint forbidding gasoline stations from selling other brands of gasoline).

11. However, to the extent a restraint reduces a firm's costs or excludes rivals, increased size or market share may result.

12. *E.g.*, Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970, 979 (4th Cir. 1990) (licensee of software not permitted to develop competing software; found to be unlawful copyright misuse); *see also* United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) (condemning under antitrust laws many restraints that Microsoft imposed on computer manufacturers and software producers to limit the development of rival internet browser Netscape), *cert. denied*, 534 U.S. 952 (2001).

13. *See* OLIVER E. WILLIAMSON, THE MECHANISMS OF GOVERNANCE 280–81 (1996); Herbert Hovenkamp, *Harvard, Chicago, and Transaction Cost Economics in Antitrust Analysis*, ANTITRUST BULL. (forthcoming 2010) (manuscript at 2–3), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1592476.

But the use of contracts rather than ownership can also threaten competition in ways that ownership integration typically does not. For example, many of the rationales for condemning intrabrand restraints are based, not on the market power of upstream sellers or IP right holders, but rather on concern about powerful dealers or cartels of dealers that may force suppliers to impose anticompetitive restrictions on these dealers' rivals.[14] A vertically integrated firm has no incentive to make its distribution system less efficient internally. But independent dealers can profit by limiting the competition between themselves and rival dealers.[15] Indeed, the *Dr. Miles* decision,[16] which first brought resale price maintenance under a per se rule, involved a cartel of retail druggists that forced suppliers to impose price restraints on the cartel's price-cutting rivals.[17]

Vertical restraints often involve IP rights because most of these restraints are specific to particular brands and technologies. Someone selling a commodity such as potatoes typically has little to gain by providing that they can be used only a certain way or resold only under certain terms, unless of course the potatoes themselves are patented.[18] But that is often not true of manufactured goods, particularly if the goods create an "aftermarket." For example, purchase of a printer, computer, or automobile may create ongoing demand for ink, software, unique replacement parts, or maintenance. Further, dealers must make long-run commitments to a particular seller's good because effective selling requires training in

14. *See* 8 Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law ¶ 1604 (3d ed. 2010).

15. *Id.*

16. Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373 (1911), *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007).

17. *Id.* at 394, *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007). On the druggists' cartel, see Herbert Hovenkamp, Enterprise and American Law, 1836–1937, at 331–48 (1991).

18. *See* Monsanto Co. vs. McFarling, 488 F.3d 973, 976–77 (Fed. Cir. 2007) (upholding post-sale restraint forbidding farmers from developing their own seed from plants produced from patented seeds, without finding antitrust violation or misuse and without discussing first sale doctrine); *see also* Monsanto Co. v. Scruggs, 459 F.3d 1328, 1335–36 (Fed. Cir. 2006) (finding the first sale doctrine did not apply for two reasons: first, the sale was conditional under *Mallinckrodt, Inc. v. Medipart, Inc.,* 976 F.2d 700, 701 (Fed. Cir. 1992), a case that was subsequently overruled in *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (2008), and second, the restriction on reuse did not operate on the original seed that Monsanto sold to farmers, which was physically incapable of reuse; rather it applied to second generation seed produced from that seed for which there had never been an earlier sale).

the characteristics and maintenance of specific brands. Most vertical restraints in modern distribution systems arise in markets where trademarks, copyrights, and patents are important components.

The modern law of distribution restraints originated in nineteenth-century IP doctrine, long before there were any antitrust laws. The first significant body of distribution restraints law in the United States was the judge-made "first sale" doctrine, often referred to as patent "exhaustion," which limited a patentee's ability to place restrictions on a patented good after it had been sold. Where the first sale bar did not apply, a breach of these restrictions could be enforced by a patent infringement action as well as a breach of contract suit. The second body of legal rules originated with the Sherman Antitrust Act, whose first section condemns contracts that restrain trade, without any exceptional treatment for IP license restrictions.[19] Later on, the Clayton Act expressly condemned tying and exclusive dealing in both patented and unpatented goods.[20] The third body of law concerns IP "misuse," another judge made doctrine that renders unenforceable an IP right held by a patentee or copyright holder who violates IP policy by limiting sales or use until the improper limitation is purged.[21]

These three doctrines—first sale, antitrust, and misuse—have distinct histories, different technical requirements, and can be invoked in different situations. At the same time, however, the amount of policy overlap is significant. For example, the famous *Motion Picture Patents* case of 1917 denied enforcement to a classic tying arrangement.[22] The patentee forbade anyone using its projector from using films made by rivals. The main body of the Supreme Court's discussion concerned the first sale doctrine.[23] But the

19. Sherman Act, ch. 647, § 1, 26 Stat. 209, 209 (1890) (current version at 15 U.S.C. § 1 (2006)).

20. Clayton Act, ch. 323, § 3, 38 Stat. 730, 731 (1914) (current version at 15 U.S.C. § 14 (2006)).

21. *See* Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488, 493 (1942) (misuse renders patent unenforceable until the misuse is purged). On the scope of misuse doctrine under IP policy, see Christina Bohannan, *IP Misuse as Foreclosure*, 96 Iowa L. Rev. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1474407.

22. Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917).

23. *See infra* notes 94–98 and accompanying text.

Court also cited the Clayton Act as supporting its decision.[24] Today the decision is also widely regarded as a "misuse" case.[25]

The Supreme Court missed an opportunity to make the law of post-sale restraints more coherent in its recent *Quanta Computer* decision, where it reverted to a strict application of the first sale rule not clearly related to any policy of furthering competition or innovation.[26] Until *Quanta*, the case law over the last two generations had consistently pursued two themes: a benign attitude toward vertical restraints and a belief that IP rights are not inherently monopolistic. The *Quanta* decision is a reversion to an older form of patent "exceptionalism" that viewed post-sale restraints on patented articles as inherently suspicious.

The *Quanta* case poses three questions. First, what kinds of post-sale restraints are justifiable? Second, when should they be enforced by contract law, and when by infringement actions? And third, when does the presence of an IP right make a difference?

On the first question, good reasons exist for limiting certain vertical restrictions: (a) they might injure competition by reducing output or raising price; (b) they might restrain innovation; and (c) they might serve to deny public access to public domain technology or information.[27] But these reasons do not exist in every case, or even in a majority of them. As a result, harmful effects must be proven.

On the second and third questions, breach of contract actions and infringement actions have different advantages and pose different problems. Contracts are the least problematic because they can generally be enforced only against people who are in privity. By contrast, infringement actions can run against all who infringe an IP right, and even those who knowingly contribute to the infringements of others. This increases the risk that such actions will be imposed on unsuspecting violators, although that problem can be addressed with a notice restriction.[28] For these very reasons, however, infringement actions are also a more efficient mechanism for enforcing legitimate, welfare-enhancing restraints. For example, imagine a regime of real property rights in which servitudes such as

24. *See Motion Picture Patents*, 243 U.S. at 517–18 (citing § 13 of Clayton Act in support of its conclusion under first sale doctrine).

25. *See, e.g.*, ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 331 (rev. 4th ed. 2007) (using *Motion Picture Patents* as example of misuse).

26. Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 636–38 (2008).

27. *Cf.* Bohannan, *supra* note 21 (manuscript at 4).

28. *See infra* notes 118–30 and accompanying text.

easements or building restrictions had to be contracted and re-contracted every time a piece of property was resold. There are good reasons for preferring infringement actions over contracts to enforce post-sale restraints in some situations but not others. The *Quanta* decision did not discuss the issue.

The existence of three doctrinal avenues for assessing the effects of vertical restraints involving IP rights has served to make the legal policy incoherent over most of its history. Often condemnation or approval rests on a contract detail that has no obvious relation to either innovation policy or competition policy. For example, under the first sale doctrine, all restraints become unenforceable as a matter of IP infringement actions, whether or not they are anticompetitive or serve to restrain innovation. At the other extreme, the antitrust laws were historically hostile to vertical restraints, but today they rarely condemn vertical restraints even if they serve to limit innovation substantially. The competitive rationale for the "misuse" doctrine has never been articulated properly in the courts, except for attempts to identify it with antitrust policy or to identify the harm as an improper "extension" of an IP right.[29]

The history of legal policy concerning post-sale IP restraints sheds some light on why the doctrine is both so complicated and so wide of the mark. The principal harms that can result from post-sale conditions are restraints on competition and restraints on innovation. Restraints on competition occur when a practice reduces output, increases prices, or unreasonably excludes firms from a market. Restraints on innovation occur when a practice acts to hinder rather than to promote innovation, typically by imposing limitations on the innovations of others.[30] Under the system that we have developed, antitrust law and misuse law are concerned almost exclusively with restraints on competition, and occasionally with restraints on innovation. Under *Quanta*, the first sale doctrine is not concerned with either one. Rather, when it applies, it blocks enforcement of post-sale restrictions as a matter of IP policy without regard to competitive impact or effect on innovation.

While these three doctrines—first sale, antitrust, and misuse—originated at different times and addressed different issues, they largely merged during the first half of the twentieth century. The first sale doctrine grew out of the common law's strong policy against restraints on alienation, which had little to do with the pro-

29. *See* Bohannan, *supra* note 21 (manuscript at 17).

30. *See id.* (manuscript at 32–34); Herbert Hovenkamp, *Restraints on Innovation*, 29 CARDOZO L. REV. 247 (2007).

tection of competition, except in the sense that it prevented wealthy landowners from tying up land in their families indefinitely. Harvard Law School Professor John Chipman Gray's influential 1890s treatise *Restraints on the Alienation of Property* regarded the common law rules prohibiting restraints on alienation as virtually sacred and a fixed part of nature.[31] These concerns dominated the development of patent law's first sale doctrine, but they later merged with very little friction into the antitrust law of vertical restraints. When the Supreme Court first applied the antitrust laws to condemn resale price limitations on goods that dealers had purchased, it relied on both Gray's treatise and the English common law limiting restraints on alienation to hold that a supplier could not impose a post-sale restraint on resale prices.[32]

The treatment offered here illustrates some of the relative advantages and disadvantages of legislation vs. judge-made rules as law reform devices in rapidly changing technological environments. One comparative advantage of judge-made rules is their relative freedom from interest-group capture—something that has plagued the IP laws since their inception.[33] However, one significant disadvantage that judges face is that they decide disputes one at a time and often in a single doctrinal context. This severely limits their opportunity to articulate a coherent policy about multi-faceted issues such as competition policy and the encouragement of innovation. A well-designed system of IP laws designed to encourage innovation while not limiting competition unnecessarily would almost certainly not require three different doctrines that are often overlapping, sometimes inconsistent, and more often than not provide no value added whatsoever.

31. JOHN CHIPMAN GRAY, RESTRAINTS ON THE ALIENATION OF PROPERTY iii–viii (2d ed. 1895).

32. Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373, 404–05 (1911), *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007).

33. On copyright, see Christina Bohannan, *Reclaiming Copyright*, 23 CARDOZO ARTS & ENT. L.J. 567 (2006); on patents, particularly during the formative era, see generally Andrew P. Morriss & Craig Allen Nard, *Institutional Choice and Interest Groups in the Development of American Patent Law: 1790–1870* (Univ. of Ill. College of Law Program in Law, Behavior & Social Science Research, Paper No. LE07-007, 2008), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1262970.

I. EARLY DISTRIBUTION RESTRAINTS AND FIRST SALE RULE

In the mid-nineteenth century, manufacturing firms began integrating vertically into distribution and sale through individually franchised dealers rather than manufacturer-owned outlets. For example, the McCormick Harvesting Co. used a set of regional patent and trademark licenses to create ongoing franchise-like relationships with local manufacturers/dealers, who could produce their machines locally and sell them to farmers, thus making national shipment of this bulky equipment unnecessary.[34] The arrangement also permitted McCormick to share the risk and cost of developing a nationwide distribution system. Such a licensee might agree to be the exclusive resale agent for McCormick's reapers in a certain territory, or it might agree that it would not sell any reapers other than McCormick's. Singer Corp. did something similar with its sewing machines, except that the machines were produced centrally and shipped to dealers rather than being produced by the dealers themselves.[35]

Competitive differences between the two methods chosen by McCormick and Singer are not significant, and a firm chose the one that was least costly and most effective for its own particular business. For McCormick's bulky but fairly simple wooden reapers, authorizing local dealers to manufacture them saved transportation costs. Today, for many fast-food franchises the food itself is "manufactured" at the restaurant from local ingredients rather than shipped in finished form from the franchisor's location. Coca-Cola sells and ships concentrated syrup to its franchised dealers, who then add water, carbon dioxide, and bottling, so in a real sense part

34. *See* Seymour v. McCormick, 57 U.S. (16 How.) 480, 490 (1853) (describing arrangement). McCormick later changed to a more centralized distribution system with wholly owned outlets. On the company's history, see ALFRED D. CHANDLER, JR., THE VISIBLE HAND: THE MANAGERIAL REVOLUTION IN AMERICAN BUSINESS 305–07, 402–08 (1977); THOMAS S. DICKE, FRANCHISING IN AMERICA: THE DEVELOPMENT OF A BUSINESS METHOD, 1840–1980, at 18–19 (1992). On the place of these practices in the history of United States policy toward vertical integration, see generally Herbert J. Hovenkamp, *The Law of Vertical Integration and the Business Firm: 1880-1960*, 95 IOWA L. REV. 863 (2010).

35. *See* RUTH BRANDON, SINGER AND THE SEWING MACHINE: A CAPITALIST ROMANCE (1977); Andrew Godley, *Selling the Sewing Machine Around the World: Singer's International Marketing Strategies, 1850–1920*, 7 ENTERPRISE & SOC'Y 266, 272, 280–87 (2006); Andrew B. Jack, *The Channels of Distribution for an Innovation: The Sewing-Machine Industry in America, 1860–1865*, 9 EXPLORATIONS IN ENTREPRENEURIAL HIST. 113, 127–31 (1957).

of a finished Coke is manufactured centrally by the franchisor and part locally by each franchisee.[36] By contrast, both today and in the past Ford automobiles were manufactured at a central plant and shipped to dealers, who prior to the sale did little more than cleanup and dealer prep work. The first sale doctrine limits Ford's ability to impose post-delivery restraints on its automobiles, but not McCormick's ability to restrain the resale of its locally manufactured reapers. This is because in the Ford case the dealers are receiving a manufactured product, while in the McCormick case they are receiving only a license to manufacture, which is not covered by the first sale doctrine.

Patent law's first sale rule states that once the patentee sells or authorizes the sale of a patented article, he has exhausted his rights with respect to that article and cannot restrain subsequent purchasers. The Court's most forceful nineteenth century statement of the doctrine was *Adams v. Burke,* which was a vertical territorial restraint case.[37] *Adams* involved a Civil War era patentee of coffin lids who had created a controlled distribution system by licensing various makers to produce them for sale in defined geographic areas and also restricted the areas in which the lids could be used. The firm of Lockhart and Seelye had acquired the right to make and sell the coffin lids within ten miles of Boston, while Adams had the right to make and sell them everywhere else. Lockhart and Seelye then manufactured the lid in question and placed it on a coffin that it sold to Burke, a mortician who used the coffin for a burial in Natick, Massachusetts, about seventeen miles from Boston. The patentee claimed that the burial violated the terms of the territorial limitation in the patent license and thus constituted infringement.[38]

The Court assumed that the geographic restriction imposed on Lockhart and Seelye's manufacturing license was enforceable, but that once a finished coffin lid was produced and sold to another, the purchaser took it free and clear of all patent obligations and could use the lid for a burial wherever he pleased. As a result, long before the antitrust laws were passed, the first sale doctrine per-

36. *See* MARK PENDERGRAST, FOR GOD, COUNTRY, AND COCA-COLA: THE DEFINITIVE HISTORY OF THE GREAT AMERICAN SOFT DRINK AND THE COMPANY THAT MAKES IT 71 (2000).

37. 84 U.S. (17 Wall.) 453 (1873). For a fuller statement of the facts, see *Adams v. Burks*, 1 F. Cas. 100 (C.C. Mass. 1871) (No. 50). The Supreme Court originally announced the doctrine in *Bloomer v. McQuewan*, 55 U.S. (14 How.) 539, 549 (1853) ("[W]hen the machine passes to the hands of the purchaser, it is no longer within the limits of the [patent] monopoly.").

38. *Burke*, 84 U.S. at 454.

formed an "antitrust" function through the patent licensing system by limiting the ability of manufacturers to impose territorial restraints on the resale of products. As the Supreme Court stated:

> [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.[39]

The Supreme Court extended the first sale rule to copyrights in 1908, in *Bobbs-Merrill Co. v. Straus*, which refused to enforce a resale price maintenance restriction created in the context of an early restricted distribution system.[40] Bobbs-Merrill published *The Castaway*, a novel written by Hallie Ermine Rives, a writer of popular and historical novels and books on etiquette.[41] The book contained a notice printed on the copyright page prohibiting anyone from reselling the book for less than $1.00 per copy. Macy's stores had purchased the book from a distributor and then resold it to a customer for 89 cents. Relying on both the patent exhaustion cases and the general policy against restraints on alienation, the Court held that the sale of the book exhausted all rights conferred by the Copyright Act, leaving Macy's free to resell it at any price it chose. [42]

Significantly for the development of future distribution law, the Court observed that the price restriction was contained in the copyright license and not in a distribution contract that the publisher had with Macy's department stores. Macy's was not in privity

39. *Id.* at 456; *see also* Keeler v. Standard Folding Bed Co., 157 U.S. 659, 664 (1895) (finding a bedstead patentee could not enforce a territorial limitation against a subsequent purchaser). Some early cases raised an issue analogous to first sale when patentees attempted to draft patents so as to cover both machines and consumables that would be used in them. *See* Morgan Envelope Co. v. Albany Perforated Wrapping Paper Co., 152 U.S. 425 (1894) (finding the patentee's combination patent covered both a device for dispensing toilet paper rolls and the consumable rolls themselves). The *Morgan Envelope* Court rejected the claim covering the rolls and held that it was not infringement for users of the device to purchase their toilet paper elsewhere. *Id.* at 432–33.

40. 210 U.S. 339, 349–51 (1908).

41. HALLIE ERMINIE RIVES, THE CASTAWAY (1904).

42. *Bobbs-Merrill*, 210 U.S. at 350–51.

of contract with the publisher, and the case had been presented and argued completely as one of copyright infringement rather than breach of a distribution contract.[43] That distinction was to prove critical in the future. As the law stood in 1908, any post-sale restraint on a patented or copyrighted article that was imposed by means of a licensing restriction and enforced by an infringement action was unenforceable. However, the courts had not yet addressed the legality of restricted distribution agreements under the Sherman Act.

Supreme Court jurisprudence concerning the first sale doctrine has been largely consistent and absolute through most of its history. The doctrine applies no matter how competitively structured the market is, and whether or not anyone is excluded—that is, it reaches far beyond conventional antitrust analysis. The first sale rule applies equally to intrabrand restraints, such as location clauses or resale price maintenance, and also to interbrand restraints such as tying or exclusive dealing. The rule applies whether or not the restraint in question serves to promote or restrain innovation; indeed, that question is not even relevant. The Court's reaffirmance of the first sale doctrine in the 2008 *Quanta* decision stated it in this broad, unqualified way,[44] despite the Court's recognition after more than 30 years of antitrust jurisprudence that most post-sale restraints are competitively harmless.

There have been two important historical exceptions to this consistent and aggressive application of the first sale rule, one very briefly recognized by the Supreme Court and one recognized nearly a century later by the Federal Circuit. The first exception was a pair of decisions written by Justice Lurton in 1896 and 1912, the first when he was on the Sixth Circuit and the second after his appointment to the Supreme Court. Both decisions involved tying ar-

43. *See id.* at 346, 350:

> The learned counsel for the appellant in this case, in the argument at bar, disclaims relief because of any contract, and relies solely upon the copyright statutes, and rights therein conferred. . . . There is no claim in this case of contract limitation, nor license agreement controlling the subsequent sales of the book . . . . In our view the copyright statutes, while protecting the owner of the copyright in his right to multiply and sell his production, do not create the right to impose, by notice, such as is disclosed in this case, a limitation at which the book shall be sold at retail by future purchasers, with whom there is no privity of contract.

Cf. Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 637 n.7 (2008) (refusing to decide whether application of first sale doctrine had any implications for breach of contract suits).

44. *Quanta*, 553 U.S. at 636–37.

rangements with a patented tying product and unpatented tied products, a practice that would later become the subject of sharp antitrust controversy. In the *Button-Fastener* case in 1896, the Sixth Circuit held that the first sale rule did not undermine a license restriction requiring purchasers of the patentee's patented button fastening machine to use only its own fastening staples.[45] The restriction was written in the form of a servitude, with a right of reverter upon violation. Judge Lurton effectively turned the first sale doctrine into a licensing default rule by holding that it applied only to "unconditional" sales. Clearly, he reasoned, a patentee's right to "use" his invention implied the right to license others subject to similar use restrictions—that is, if the patentee could use his patented fastener only with his own staples, he could also place the same restriction on licensees.[46] The only limitation that Lurton recognized on this power was where a monopoly in the "unpatented article" might be created.[47] In the present case, however, there was no prospect of monopoly in the unpatented staples, and the patentee's only apparent purpose in using the tie was to meter use of the machine for purposes of computing royalties.[48] Such a use "may or may not result in the engrossment of the market for staples," and there was no evidence that it did so in this case.[49]

Judge Lurton ignored the Supreme Court's concern with restraints on alienation and attempted to import a competition policy into the first sale doctrine by holding that a post-sale tying restraint ought to be unlawful only if it led to a monopoly in the tied product. Lurton's analysis is remarkably similar to the way the Supreme Court began assessing tying arrangements under the antitrust laws a generation later. Even in that case, Lurton suggested, the monopoly in fasteners would not be odious if it resulted from the superiority of the patentee's stapling machine.[50] Except for a possible

45. Heaton-Penninsular Button-Fastener Co. v. Eureka Specialty Co., 77 F. 288, 289–90 (6th Cir. 1896). The restriction read: "This machine is sold and purchased to use only with fasteners made by the Peninsular Novelty Company, to whom the title to said machine immediately reverts upon violation of this contract of sale." *Id.* at 290.

46. *Id.* at 292 ("If, then, the patentee has the exclusive right to the use of his invention or discovery, during the term of his patent, it would seem to follow that any use by another, unauthorized by the patentee, would be an infringement of his monopoly.").

47. *Id.* at 294.

48. *See id.* at 296 ("The fasteners are thus made the counters by which the royalty proportioned to the actual use of the machine is determined.").

49. *Id.*

50. *Id.* Judge Lurton did rely on the Supreme Court's decision in *American Cotton-Tie Co. v. Simmons*, 106 U.S. 89 (1882), in which the patentee sold metal ties

reference to restraints on trade, the opinion never cited the Sherman Act, which had been passed six years earlier.[51]

Judge Lurton was appointed to the Supreme Court in 1909 by President Taft, who had also been a Judge on the Sixth Circuit and had been on the panel with Judge Lurton in the *Button-Fastener* case. In 1912, Lurton wrote the Court's opinion in *Henry v. A.B. Dick Co.*, stating in a shorter version what he had said earlier in the *Button-Fastener* case.[52] In this case the patentee posted a license on its mimeograph copy machine requiring purchasers to use its paper, ink, and stencils exclusively. It sold a copy of the machine with the affixed license to Christina B. Skou, who subsequently purchased a can of ink from Sidney Henry, an office supply salesman, in violation of the restriction. The machine itself was sold at a price of cost or less, indicating that A.B. Dick was earning its profits from the tied supplies, and thus probably using the tie as a price discrimination device, effectively earning a higher rate of return from higher volume users.[53] The action was brought against Henry for

for cotton bales with a printed restriction that they were authorized for a single use only. The defendant was in the business of salvaging the used ties and piecing them together for resale. The Supreme Court found infringement, but did not address the first sale issue. Rather, it held that the defendant's conduct in piecing the broken parts of the ties together constituted a reconstruction rather than a repair of the ties, and thus constituted patent infringement.

51. The possible reference is this passage:

> This brings us to consider the objections urged against the rather novel restrictions contained in the licenses granted by complainant. The very able counsel for appellees have urged very forcibly an argument based upon principles of public policy in respect of monopolies and contracts in restraint of trade, and have contended that public policy forbids a patentee from so contracting with reference to his monopoly as to create another monopoly in an unpatented article.

Id. at 292. The court rejected the contention with no further reference to the public policy against monopolies and contracts in restraint of trade, concluding that any monopoly created by the restriction was justifiably within the patent grant. *Id.* at 296.

52. Henry v. A.B. Dick Co., 224 U.S. 1 (1912), *overruled by* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917).

53. On this fact, see *Bauer & Cie v. O'Donnell*, 229 U.S. 1, 14–15 (1913) (characterizing the facts of *Henry*). When the dominant firm shifts the monopoly overcharge to a tied product that is used in variable proportions, the rate of return on the package increases as the number of units of tied product increases. For example, suppose that the machine is sold at cost, $100, while the can of ink costs $5 and is sold for $15. If a buyer takes one unit of the machine and one can of ink the return is 115(price)/105(cost), or 9.5%. If the buyers uses two cans of ink the return is 130/110, or 18%. If the buyer uses ten cans of ink the return is 250/150, or 67%. The premise underlying such schemes is that more intense users value the machine by a greater amount than less intense users. On the use of ties as price

contributory patent infringement.[54] Once again, Lurton distinguished conditional and unconditional sales and held that the first sale doctrine did not preclude enforcement of a restraint contained in a conditioned sale. The reasoning was mainly that, because the patentee could refuse to sell altogether, it could sell subject to any condition it pleased. The Court pointed out that no monopoly of the tied stencils, paper, and ink was in prospect:

> The stencil, the paper, and the ink made by the patentee, will continue to be unpatented. Anyone will be as free to make, sell, and use like articles as they would be without this restriction, save in one particular—namely, they may not be sold to a user of one of the patentee's machines with intent that they shall be used in violation of the license.[55]

In 1914 Congress responded to *Henry* by passing § 3 of the Clayton Act, which made anticompetitive ties unlawful whether the tying products were leased or sold, and whether they were patented or unpatented.[56] *Henry* was then resoundingly overruled by the Supreme Court in 1917 in the *Motion Picture Patents* decision, which is discussed later.[57] While the Court found support for its decision condemning the patent tie in the newly passed Clayton Act, the decision's analysis was based almost exclusively on the first sale doctrine.[58] *Motion Picture Patents* is one of many situations in which the Supreme Court commingled the first sale doctrine and antitrust concerns so as to produce a unitary policy.[59]

The second historical exception to first sale aggressiveness occurred more recently, when the Court of Appeals for the Federal Circuit revived Justice Lurton's attempt to make the doctrine turn

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discrimination devices, and impact on competition or consumers, see Hovenkamp & Hovenkamp, *supra* note 9.

54. Contributory infringement occurs when one knowingly aids or abets the infringement of someone else. 35 U.S.C. § 271(c) (2000). Contributory infringement is not specified in the Copyright Act but is a judge made rule with similar requirements. *See* Metro-Goldwyn-Mayer Studies, Inc. v. Grokster, Ltd., 545 U.S 913, 930–31, 940–41 (2005) (vacating summary judgment that did not find copyright contributory infringement); Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 433 (1984) (finding fair use defense by consumers undermined contributory infringement claim against provider of videotape recorder).

55. *Henry*, 224 U.S. at 31–32.

56. 15 U.S.C. § 14, 38 Stat. 731 (Oct. 15, 1914).

57. *See* Motion Picture Patents Co. v. Universal Film Mfg Co., 243 U.S. 502, 518 (1917) ("[T]he decision in *Henry* must be regarded as overruled.") (citations omitted); *see also infra* notes 94–98 and accompanying text.

58. *See generally id.*

59. *See infra* notes 60–68 and accompanying text.

on realistic threats of monopoly.[60] The *Mallinckrodt* case once again distinguished "conditional" sales, which occur when the patentee places restrictions on the rights of purchasers, thus conveying away less than its entire patent interest in the article in question.[61] Because these conditions are couched in terms of the patentee's withholding of a portion of its patent rights, violations of the restrictions are regarded as patent infringements.[62] And because the first purchaser cannot transfer a larger interest than it owns, subsequent purchasers acquire the good subject to the same conditions and are also subject to patent infringement suits if the conditions are violated. Finally, this condition can be created either by agreement with the first purchaser, or simply by the patentee's attachment of a notice to the patented article. The only limitation the court found on this ability to condition sales of patented goods is that the condition may not be one that falls outside of the patent grant—meaning that the condition may not violate the antitrust laws, constitute patent misuse, or be contrary to public policy for some other reason.[63] In sum, the court created a patentee-initiated exception to the first sale doctrine for restraints that did not violate the antitrust laws or other competition policy.

In its 2008 *Quanta* decision the Supreme Court unanimously rejected the Federal Circuit's approach and restored the first sale rule to its original broad scope.[64] "The authorized sale of an article that substantially embodies a patent exhausts the patent holder's rights and prevents the patent holder from invoking patent law to control post-sale use of the article."[65] The opinion failed to articulate any rationale for the doctrine other than naked precedent and stare decisis. The Court largely ignored the historical concern with restraints on alienation or the later concerns with competition policy. Following the views of the Solicitor General, it indicated that while conditions may be imposed at the time patented goods are sold, these must be done by means of license restrictions rather than conditional sales.[66] This means that the conditions can be enforced only by breach of contracts suits, not by infringement suits, and only against persons who are in privity with respect to the con-

60. Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700 (Fed. Cir. 1992), *abrogated by* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008).

61. *Id.* at 706–08; *see also* B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419, 1426 (Fed. Cir. 1997).

62. *See, e.g.*, *Mallinckrodt*, 976 F.2d at 706–08.

63. *Id.* at 708.

64. Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 636–38 (2008).

65. *Id.* at 638.

66. *Id.* at 636–38.

tract that is being enforced. The Court expressed "no opinion on whether contract damages might be available even though exhaustion operates to eliminate patent damages."[67]

II.
THE CONSISTENCY BETWEEN THE FIRST SALE DOCTRINE AND COMPETITION POLICY

The *Quanta* decision leaves the impression that the first sale doctrine never had anything to do with competition policy.[68] But that is hardly the case. Most of the first sale cases in the century between *Henry* (1912) and *Quanta* (2008) involved either resale price maintenance or tying. While after *Henry* the Supreme Court was consistent in its application of the first sale rule, it also invariably linked the first sale doctrine to antitrust policy. For example, the technical requirements of the first sale doctrine itself also identified the boundary of unlawful RPM. Like the first sale doctrine, the rule against RPM applied only when there was a sale of an object and then a qualifying resale; it did not apply to services, processes, or production licenses.[69] Whether tying law would also have tracked the first sale doctrine is difficult to say because § 3 of the Clayton Act intervened, making clear that antitrust tying rules applied to both sales and leases, and thus extending the range of antitrust into areas where the first sale doctrine would not apply.

The aggressiveness with which the first sale rule was applied during this period is hardly surprising, and is not inconsistent with the proposition that the Supreme Court had competition policy in mind in first sale decisions. During the same period, the Supreme Court was regularly hostile toward these same restraints when they were analyzed under either antitrust rules or misuse doctrine. Indeed, virtually every Supreme Court case that applied the first sale

67. *Id.* at 637 n.7. The Court quoted the following passage from *Keeler v. Standard Folding Bed Co.*, 157 U.S. 659, 666 (1895):

> Whether a patentee may protect himself and his assignees by special contracts brought home to the purchasers is not a question before us, and upon which we express no opinion. It is, however, obvious that such a question would arise as a question of contract, and not as one under the inherent meaning and effect of the patent laws.

68. The Court's only mention of the antitrust laws was a brief reference to the fact that the *Univis Lens* decision had contained an antitrust issue. *See Quanta*, 553 U.S. at 627 (discussing United States v. Univis Lens Co., 316 U.S. 241, 248–49 (1942)). Beyond that, the decision contains no discussion of competition policy.

69. *See infra* notes 148–59 and accompanying text.

doctrine would have come out the same way[70] under antitrust or, in procedurally appropriate circumstances,[71] misuse doctrine. Many of the decisions expressly referenced the antitrust laws as well, just as *Motion Picture Patents* did.[72] *Henry* was anomalous for two reasons: first, it deviated from Supreme Court first sale doctrine; second, it stood alone among Supreme Court decisions in its benign attitude toward patent tying arrangements—a position that was not to change until the late 1970s.[73]

Indeed, if the first sale doctrine does not find its purpose in either competition policy or innovation policy, then it is difficult to find any value for it other than precedent—a fact that did not trouble the Supreme Court in *Quanta*. Over history, most of the Supreme Court's decisions on the first sale doctrine have attached its rationale to competition policy. Most decisions that have applied the rule have involved either tying arrangements or RPM, and the Court was typically not very subtle about noting that the first sale rule and antitrust law pulled in tandem. This trend was exacerbated by the extraordinary difficulty that courts have had in understanding the economics of restricted distribution. Lacking a rationale for explaining why vertical restrictions were anticompetitive in the traditional sense of leading to reduced output and higher prices, antitrust itself imported from the first sale doctrine the common law's concern with restraints on alienation.

A. Tying and Resale Price Maintenance, 1908–1917

In its *Dr. Miles* decision, three years after *Bobbs-Merrill*, the Supreme Court cited both the first sale doctrine and the Sherman Act for the proposition that even an explicit RPM agreement between a manufacturer of a patent medicine and a retailer was contrary to legal policy.[74] The Court expressly incorporated the common law

70. That is, it would have refused to enforce the restriction—not that the first sale doctrine could justify an award of antitrust's treble damages under 15 U.S.C. § 15(a) (2006).

71. "Misuse" typically arises only as a defense to an infringement action. *See* Bohannan, *supra* note 21 (manuscript at 3).

72. *See infra* notes 97–98 and accompanying text.

73. The Supreme Court began to develop a more benign attitude toward tying in *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984) and *U.S. Steel Corp. v. Fortner Enters., Inc.*, 429 U.S. 610 (1977); *see also* AREEDA, ELHAUGE & HOVENKAMP, *supra* note 5, ¶ 1733.

74. Interestingly, by that time Justice Lurton, who recused himself from *Dr. Miles*, was already on record as believing that resale price maintenance was unlawful under the antitrust laws. While on the Sixth Circuit he had written the *Dr. Miles* decision, which the Supreme Court ultimately affirmed. *See* Dr. Miles Med. Co. v.

policy against restraints on alienation into its interpretation of the Sherman Act, quoting from *Coke upon Littleton*, an early seventeenth-century edition of a fifteenth century treatise on property law.[75] Even the *Schwinn* decision more than a half century later, which condemned a dealer distribution system that involved territo-

John D. Park & Sons Co., 164 F. 803 (6th Cir. 1908), *aff'd*, 220 U.S. 373 (1911). Lurton rested the rationale on the fact that Dr. Miles medicines were not patented and that the resale price maintenance agreement was imposed by contract rather than license agreement. One important difference, Lurton observed, was that a patent is of finite duration while contracts can be extended indefinitely. As a result any monopoly thereby created would be more odious:

> Any other conclusion would be to sanction a monopoly in that class of goods vastly more far-reaching than the monopoly extended upon high grounds of public policy to the inventor. The statutory monopoly has a limitation of a few years. To obtain it the inventor must put on record his invention. At the end of the term the public will be free to employ the discovery without the burden theretofore imposed as a compensation to the inventor. Not so with the monopoly asked for by those who control the enormous proprietary trade of this country. Their monopoly will go on forever. . . .

See id. at 806. The strong implication was that if the medicines had been patented and the RPM carried out by patent license rather than distribution contract, Lurton would have applied his *Button-Fastener* and *Henry* analysis instead. In sum, for Lurton both tying and resale price maintenance were lawful if imposed on patent goods by means of a patent license. RPM was unlawful if imposed on unpatented goods by a simple contract. Soon-to-be Supreme Court Justice Van Devanter, while still on the Eighth Circuit, took that same position with respect to resale price maintenance, holding that an RPM restriction placed on a license to resell patented goods could be enforced by means of a patent infringement action. *See* Nat'l Phonograph Co. v. Schlegel, 128 F. 733 (8th Cir. 1904). By contrast, in *Dr. Miles* the Supreme Court found the resale price maintenance agreement to be fully covered by the first sale doctrine announced in *Bobbs-Merrill*. *See Dr. Miles*, 220 U.S. at 405 (analogizing to facts of *Bobbs-Merrill*, observing that Dr. Miles' medicines were neither patented nor copyrighted, and concluding that "It will hardly be contended, with respect to such a matter, that the manufacturer of an article of commerce not protected by any statutory grant is in any better case.").

75. The Court was referring to Lord Chief Justice Edward Coke's statement that if someone

> be possessed . . . of a horse or of any other chattel, real or personal, and give or sell his whole interest or property therein, upon condition that the donee or vendee shall not alien the same, the same is void, because the whole interest and property is out of him, so as he hath no possibility of a reverter; and it is against trade and traffic and bargaining and contracting between man and man.

Dr. Miles, 220 U.S. at 404–05 (quoting EDWARD COKE, THE FIRST PART OF THE INSTITUTES OF THE LAWS OF ENGLAND: A COMMENTARY UPON LITTLETON § 360 (London, W. Clarke 16th ed. 1809) (1628). The Court also referenced John Chipman Gray's RESTRAINTS ON ALIENATION OF PROPERTY, §§ 27, 28 (2d ed. 1895). *See supra* notes 31-32 and accompanying text. Gray's book never mentioned patented or copyrighted goods.

rial restraints, cited this "ancient rule against restraints on alienation" as a rationale for applying the antitrust laws.[76] *Schwinn* did not connect a policy limiting restraints on alienation to lower output or higher prices.

The Court finally repudiated this rationale for applying antitrust to distribution restraints in its 1977 *Sylvania* decision, which very largely brought an end to antitrust condemnation of nonprice distribution restraints.[77] During the interval from *Sylvania* to *Quanta*, the Supreme Court never considered a first sale case and thus never had the opportunity to decide whether more lenient treatment of vertical nonprice restraints also entailed some loosening of the first sale doctrine. In its *Leegin* decision in 2007, which overruled *Dr. Miles*, the Court rejected common law policies against restraints on alienation as a justification for the per se rule against RPM. Such rules, it said, reflected "formalistic line drawing" rather than "demonstrable economic effect."[78] By contrast, the *Quanta* decision a year later renewed the full-blown historical first sale doctrine with no mention of competition policy or, for that matter, any policy whatsoever except stare decisis.

Following the first sale doctrine, the Sherman Act created a second body of federal law that could be applied to anticompetitive restrictions on sale and use. While patents were not mentioned in the Act, its passage occurred during a milieu of growing hostility toward big business. Increasingly, patents came to be viewed as one of the principal vehicles by which large firms perpetuated and extended their power. Early in the twentieth century, both patent doctrine and antitrust law evolved more aggressive and focused rules to deal with perceived problems of patent overreaching. Much of this development occurred as a result of the reaction to the *Henry* deci-

76. United States v. Arnold, Schwinn & Co., 388 U.S. 365, 380 (1967) ("But to allow this freedom where the manufacturer has parted with dominion over the goods—the usual marketing situation—would violate the ancient rule against restraints on alienation and open the door to exclusivity of outlets and limitation of territory further than prudence permits."); *see also id.* at 391 (Stewart, J. concurring in part and dissenting in part) (citing Coke upon Littleton and accusing the majority of embracing a legal rule "merely on grounds of its antiquity").

77. Continental T.V., Inc. v. GTE Sylvania, Inc., 433 U.S. 36, 57–59 (1977).

78. Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877, 887 (2007) (quoting Continental T.V., Inc. v. GTE Sylvania, Inc., 433 U.S. 36, 59 (1977)).

sion, which had held that a post-sale tying condition on a patented good violated neither the first sale rule nor the Sherman Act.[79]

While *Henry*'s formal demise did not occur until after § 3 of the Clayton Act was passed in 1914, the Court largely undermined it and restored the original first sale doctrine in 1913 in a RPM case. In *Bauer*, decided a year after *Henry*, the Court held that the first sale doctrine precluded a firm from using a patent license restriction to impose RPM on a patented medicine called Sanatogen.[80] The restriction was printed on each package of the medicine with a warning that a violation would lead to a patent infringement action.[81] The Court had three choices: it could have followed *Bobbs-Merrill* by holding that the first sale doctrine rendered the RPM clause unenforceable, followed *Henry* by enforcing the restriction, or followed *Dr. Miles*, then only two years old, by holding that the license agreement amounted to an unlawful contract in restraint of trade.

The Court followed both *Bobbs-Merrill* and *Dr. Miles*. As far as the first sale doctrine was concerned, the Court noted that *Henry* had distinguished *Bobbs-Merrill* by observing that the Patent Act, unlike the Copyright Act, gave the patentee the exclusive right to "use" its invention, and the tying restriction was a restriction on how the machine could be used.[82] However, a price restriction is not a restriction on use; as a result, the sale of a unit of the drug deprived the patentee of any right to control the resale price of that unit.[83] With respect to *Dr. Miles*, the Court observed that it had declared that RPM agreements were contrary to public policy and unenforceable.[84] Of course, Congress had the power to create an exception in the Patent Act, but there was no evidence that it had done so. So *Bauer* was in fact a first sale decision, which observed consistency with the policy of the Sherman Act.

79. Henry v. A.B. Dick & Co., 224 U.S. 1, 11 (1912), *overruled by* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917); *see also supra* notes 54–57 and accompanying text.

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

81. *Id.* at 8:

> This size package of Sanatogen is licensed by us for sale and use at a price not less than one dollar ($1). Any sale in violation of this condition, or use when so sold, will constitute an infringement of our patent No. 601,995, under which Sanatogen is manufactured, and all persons so selling or using packages or contents will be liable to injunction and damages.

82. *Id.* at 15.

83. *Id.* at 15–16.

84. *Id.* at 12.

The effective merger of the first sale rule and antitrust policy occurred in two decisions issued on the same day in April 1917. *Straus v. Victor Talking Machine* involved RPM, and the much better known *Motion Picture Patents* decision involved a tying arrangement.[85] The facts of *Straus* suggest a ham-handed attempt to evade *Dr. Miles*, which had condemned contractual RPM, and also *Bauer*, which had involved a post-sale restraint on the sale of a patented product, by using what purported to be a non-sale patent license instead. The patentee "licensed" a phonograph machine to dealers, together with the right to "sublicense" the machine to customers.[86] The license restrictions included both a tying clause requiring the use of the patentee's needles and other supplies, and also a clause stipulating the minimum price at which the machine could be transferred from dealers to customers.[87] While denominated a "license," these transfers of the phonograph resembled sales in every other respect. The patentee brought a patent infringement action against a New York merchant who undercut the stipulated price.[88]

The Court found that the scheme was "in substance, the one dealt with by this court in *Dr. Miles* . . . and in *Bauer*" and that the license language was a subterfuge to disguise what was in fact a sale.[89] It then declared the condition unenforceable, relying mainly on first sale cases extending back to *Adams v. Burke*.[90]

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85. Straus v. Victor Talking Mach. Co., 243 U.S. 490 (1917); Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917).

86. *Straus*, 243 U.S. at 491.

87. *Id.* at 494–95.

88. *Id.* at 496.

89. *Id.* at 498.

90. *Id.* at 501 (citing Adams v. Burke, 84 U.S. (17 Wall.) 453, 456 (1873)); *see supra* notes 37–40 and accompanying text. A year later, in *Boston Store of Chicago v. American Graphophone Co.*, 246 U.S. 8 (1918), the Supreme Court struck down under the first sale doctrine a license restriction compelling resale price maintenance.

Since *Dr. Miles* had been written six years earlier, there was no question that a contract imposing resale price maintenance was unlawful and unenforceable. But the Supreme Court made clear that one could not accomplish the same purpose by means of a license restriction. In so doing it applied the orthodox first sale rule, that:

> by virtue of the patent law one who had sold a patented machine and received the price and had thus placed the machine so sold beyond the confines of the patent law, could not by qualifying restrictions as to use keep under the patent monopoly a subject to which the monopoly no longer applied.

Straus, 243 U.S. at 24. In a concurring opinion, Justice Brandeis protested that the legality of resale price maintenance "is an economic question" which requires analysis of the market facts. *Id.* at 28 (Brandeis, J., concurring).

Motion Picture Patents is far better known than *Straus*, and its language is a swirl of ideas that determined the future course of the first sale doctrine, misuse doctrine, and antitrust.[91] In 1914 an angry Congress responded to the *Henry* decision by passing § 3 of the Clayton Act, which condemned anticompetitive ties, including those involving patented tying products.[92] In *Motion Picture Patents* the Supreme Court overruled *Henry*. It also gave the first hints of what subsequently would become the doctrine of patent "misuse," an affirmative defense in a patent infringement action that occurs when a patentee is said to have expanded the scope of its patent improperly.[93]

Motion Picture Patents condemned an arrangement under which the seller of a theater motion picture projector limited its use to the showing of the seller's own films. The restriction was a lingering portion of a failed attempt by interests who owned Thomas Edison's projector and film patents[94] to monopolize the entire United States motion picture industry. The attempt even included blacklisting actors and actresses who had agreed to work on films produced by competitors of the Company.[95] By the time the Supreme Court decided the case, the monopoly had fallen apart. Nevertheless, the Clayton Act had been passed and the Court used *Motion Picture Patents* as an opportunity to state that the new statute "confirmed" its pre-*Henry* first sale cases.

91. Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917).

92. 15 U.S.C. § 14 (2006).

93. *See, e.g.*, Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27, 31–33 (1931) (finding tying of dry ice to patented ice box constituted misuse and rejecting patentee's attempt to distinguish *Motion Picture Patents* by pointing out that, as in *Henry*, tied products were essential to functioning of patented product); Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488, 489 (1942) (tying of salt to salt injecting machine used by canners resulted in misuse).

94. While not the earliest inventor, Edison was one of the earliest commercial developers of the sprocketed projector take up wheel and film with little holes on the side that engaged the sprocket, thus permitting the film to run smoothly and eliminating the jerkiness that often appeared in very early motion pictures. Ownership of the technology itself was disputed. *See* Charles Musser, *The Emergence of Cinema: The American Screen to 1907*, *in* HISTORY OF THE AMERICAN CINEMA 130–80, (Charles Harpole ed., Scribner's 1990).

95. For background history on the business practices of the motion picture industry, see MICHAEL CONANT, ANTITRUST IN THE MOTION PICTURE INDUSTRY: ECONOMIC AND LEGAL ANALYSIS 16–21 (1960); BENJAMIN B. HAMPTON, A HISTORY OF THE MOVIES (THE LITERATURE OF CINEMA) 8–11, 17–24, 34, 64–76, 79–81 (1931); LEWIS JACOBS, THE RISE OF THE AMERICAN FILM: A CRITICAL HISTORY, 1921–1947, at 81–85, 88, 164–65, 291–92 (1968).

Today *Motion Picture Patents* is widely treated as both an early patent "misuse" decision[96] as well as an antitrust decision.[97] In fact, its analysis is mainly of patent "exhaustion," or first sale. As the Court wrote:

> [T]he right to vend is exhausted by a single, unconditional sale, the article sold being thereby carried outside the monopoly of the patent law and rendered free of every restriction which the vendor may attempt to put upon it. The statutory authority to grant the exclusive right to 'use' a patented machine is not greater, indeed, it is precisely the same, as the authority to grant the exclusive right to 'vend,' and, looking to that authority, for the reasons stated in this opinion, we are convinced that the exclusive right granted in every patent must be limited to the invention described in the claims of the patent, and that it is not competent for the owner of a patent, by notice attached to its machine, to, in effect, extend the scope of its patent monopoly by restricting the use of it to materials necessary in its operation, but which are no part of the patented invention, or to send its machines forth into the channels of trade of the country subject to conditions as to use or royalty to be paid, to be imposed thereafter at the discretion of such patent owner. 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 forbid it.[98]

96. *See* AREEDA, ELHAUGE & HOVENKAMP, *supra* note 5, ¶ 1781; HERBERT HOVENKAMP, MARK D. JANIS, MARK A. LEMLEY & CHRISTOPHER R. LESLIE, IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW, ch. 3 (2d ed. 2010); ROBERT P. MERGES, PETER S. MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 331 (rev. 4th ed. 2007) (reprinting *Motion Picture Patents* as a misuse decision in the casebook); Bohannan, *supra* note 21 (manuscript at 4); Thomas F. Cotter, *Misuse*, 44 HOUS. L. REV. 901, 904–06 (2007).

97. *See* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 517–18 (1917). In *Motion Picture Patents*, the Court stated it was "confirmed" in its conclusion by the recently passed § 3 of the Clayton Act; its conclusion on the first sale doctrine, however, made it "unnecessary to make the application of this statute to the case at bar." *Id.* at 517. Nevertheless, the Clayton Act provision was "a most persuasive expression of the public policy of our country with respect to the question before us." *Id.*

98. *Id.* at 515–16.

B. The First Sale Rule in the Development of Modern Competition Policy

As they became more refined and technical, the developing doctrines of exhaustion, antitrust, and misuse all addressed practices thought to be anticompetitive, such as tying, but they also moved in different directions. Briefly:

The first sale rule, which was entirely judge-made in patent and added to the copyright statute only in 1976,[99] applied only to sales of the patented or copyrighted good. The remedy was non-enforcement of the restriction, or alternatively, a defense to an infringement action for violating the restriction. As the Supreme Court summarized the doctrine in its recent *Quanta* decision, the rule applies without any inquiry into either competitive effects or innovative restraint.[100]

Misuse, another judge-made doctrine that was not fully developed until the 1942 *Morton Salt* decision,[101] could apply to both sales and leases of a patented good as well as licenses; thus it applied in many situations when the first sale doctrine would not. Misuse served as a defense to an infringement action, but under *Morton Salt* the patent became unenforceable against all infringers until such time as the misuse was purged. The law developed antitrust-like criteria for determining when patent misuse occurs, although current law reaches more broadly in copyright misuse cases.[102]

If the appropriate anticompetitive effects are shown, a restraint can also violate the antitrust laws, passed by statute in 1890[103] and 1914,[104] and provide the basis for an affirmative challenge by the government in an equity case or by private plaintiffs seeking treble

99. In copyright, Congress addressed the problem by expressly permitting parties to contract around the first sale doctrine, but then limiting the parties to contract remedies if they do so. *See* 17 U.S.C. § 109(a) (2006) (stating first sale doctrine); House Committee, Notes accompanying section 109(a), Notes of Comm. on the Judiciary, H.R. REP. NO. 94-1476, at 79 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5693; *see generally* Bohannan, *supra* note 1; David A. Rice, *Licensing the Use of Computer Program Copies and the Copyright Act First Sale Doctrine*, 30 JURIMETRICS J. 157 (1990) (discussing copy use license agreements as a method to contract around the first sale doctrine).

100. Quanta Computer, Inc. v. LG Elecs, Inc., 553 U.S. 617, 630 (2008).

101. Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488, 490 (1942).

102. For more information on the scope of misuse, see Bohannan, *supra* note 21.

103. Sherman Act, ch. 647, §§ 1–7, 26 Stat. 209, 209–10 (current version at 15 U.S.C. §§ 1–7 (2006)).

104. Primarily section 3 of the Clayton Act. Clayton Act, ch. 323, § 3, 38 Stat. 730, 731 (1914) (current version at 15 U.S.C. § 14 (2006)).

damages or an injunction. The Clayton Act provision applies equally to the sale of patented products, leases, and to licenses.[105]

In subsequent legal development, patent misuse law loosely tracked antitrust principles.[106] Patent misuse has been a broader concept in the case law, however, particularly in that of the Federal Circuit,[107] and copyright misuse is broader still.[108] The first sale doctrine has never been cabined in this way, and under *Quanta* applies without any query into harmful effects. So the operative distinctions are that the first sale doctrine is substantively broader, reaching even conditions not seen as anticompetitive or in violation of antitrust law or as restraints on innovation. However, the doctrine is more limited in the sense that it applies only to the authorized sale of a patented or copyrighted article, not to leases or licenses.

105. *See, e.g.*, Int'l Salt Co. v. United States, 332 U.S. 392 (1947) (condemning salt tie); Int'l Bus. Machs. Corp. v. United States, 298 U.S. 131 (1936) (condemning a lease requiring the lessees of tabulating machines to use the lessor's punch cards).

106. *See, e.g.*, AREEDA, ELHAUGE & HOVENKAMP, *supra* note 5, ¶ 1781 (advocating a relatively close adherence to antitrust principles); HOVENKAMP, JANIS, LEMLEY & LESLIE, *supra* note 96, ch. 3, § 3.2 (noting that misuse doctrine is largely coextensive with antitrust doctrine, though the Federal Circuit has held misuse doctrine to be broader); Cotter, *supra* note 96, at 949–59 (arguing that misuse should follow antitrust principles). *But see* Bohannan, *supra* note 21 (manuscript at 46) (arguing that misuse should apply when there is an antitrust violation, an unreasonable restraint on innovation, or an unreasonable sequestering of public domain information or technology).

107. *See, e.g.*, Princo v. Int'l Trade Comm'n, 616 F.3d 1318, 1329 (Fed. Cir. 2010) (en banc) (finding proof of an antitrust violation insufficient to show misuse where the conduct was not actually outside scope of the patent grant); Senza-Gel Corp. v. Seiffhart, 803 F.2d 661, 668 (Fed. Cir. 1986) (finding potential misuse for tying even though antitrust's "separate products" requirement was not met); *cf.* Transitron Elec. Corp. v. Hughes Aircraft Co., 487 F. Supp. 885, 892 (D. Mass. 1980) ("[P]atent misuse may be seen as having a less stringent standing requirement and a lesser burden of proof than an antitrust claim."), *aff'd*, 649 F.2d 871 (1st Cir. 1981). *Contra* USM Corp. v. SPS Techs., 694 F.2d 505, 511–12 (7th Cir. 1982) (finding patent misuse should be addressed under antitrust principles), *cert. denied*, 462 U.S. 1107 (1983).

108. *See, e.g.*, Apple, Inc. v. Psystar Corp., No. C 08-03251 WHA, 2009 WL 303046, at *4–5 (N.D. Cal. Feb. 6, 2009) (recognizing possible copyright misuse claim even though antitrust claim had been dismissed); Assessment Techs. of Wis., LLC v. WIREdata, Inc., 350 F.3d 640, 647 (7th Cir. 2003) (suggesting copyright misuse could be found without an antitrust violation); Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970, 978–79 (4th Cir. 1990) (finding copyright misuse without any corresponding violation of antitrust law); *see also* Bohannan, *supra* note 21 (manuscript at 13–14).

The result is far too much doctrine, pointing in too many different directions. Further, the first sale doctrine fails to address in any comprehensive way the two policy concerns that should be fundamental to the analysis of such restraints. First, they must not impair competition unreasonably, with "competition" defined as the state of affairs when prices are kept close to cost and output is maximized. Second, they must not serve unreasonably to restrain innovation or sequester the public domain. Antitrust policy is concerned with competition but has had great difficulty developing good theory about when such restraints are anticompetitive. By contrast, both the first sale rule and IP misuse are thought of as developing within IP, where the underlying goal is to further innovation. But facilitation of innovation has never been articulated as a goal of first sale doctrine.

In its pre-*Quanta* case law the Supreme Court had developed rationales for the first sale doctrine other than limiting restraints on alienation. These concerns then bled into both antitrust policy and the IP law of foreclosure.

1. Multiple Royalties and Leveraging

One historical concern that the courts raised in first sale cases was that permitting the patentee to place post-sale license restrictions on patented goods would entitle the patentee to collect multiple royalties. This concern appeared and reappeared in the law of the first sale doctrine and later merged into both the doctrine of patent misuse and the antitrust law of tying arrangements. As early as 1863 the Supreme Court declared that the first sale doctrine was essential because patentees:

> are entitled to but one royalty for a patented machine, and consequently when a patentee has himself constructed the machine and sold it, or authorized another to construct and sell it, or to construct and use and operate it, and the consideration has been paid to him for the right, he has then to that extent parted with his monopoly, and ceased to have any interest whatever in the machine so sold or so authorized to be constructed and operated.[109]

109. Bloomer v. Millinger, 68 U.S. 340, 350 (1863); *see also* United States v. Masonite Corp., 316 U.S. 265, 278 (1942) (determination of exhaustion rests on "whether or not there has been such a disposition of the article that it may fairly be said that the patentee has received his reward for the use of the article").

That concern was most recently stated by the now vindicated district court decision in *Quanta,* which justified the first sale doctrine as prohibiting "double" royalties.[110]

This concern about double monopoly profits was largely the same as the concern that drove patent tying misuse cases, as well as those involving contractual extensions of royalty-like payments. For example, in the *Carbice* decision, which applied the first sale doctrine but was treated later as a misuse case, Justice Brandeis opined that a patentee's tie of a refrigerated transport box to its dry ice refrigerant was bad because it enabled the patentee to earn a monopoly profit not merely on the box but also on the unpatented ice.[111] And in *Brulotte v. Thys*, which applied patent misuse doctrine, Justice Douglas declared that contracts requiring post-expiration payments akin to royalties were bad because they enabled the patentee to multiply the amount of royalties that it could receive: "[T]o use that leverage [of the patent] to project those royalty payments beyond the life of the patent is analogous to an effort to enlarge the monopoly of the patent by tying the sale or use of the patented article to the purchase or use of unpatented ones."[112]

In the 1950s, this leverage theory of monopoly tying was largely discredited by Chicago School writers, who showed that a monopolist of a product that uses complements or that is subject to further downstream sales can earn all of the available monopoly profits in

110. LG Elecs., Inc. v. Asustek Computer, Inc., No. C 01-00326 CW, 2002 WL 31996860, at *4 (N.D. Cal. Aug 20, 2002) (first sale doctrine "designed to prevent a patentee from receiving a double royalty on a single patented invention"), *clarified by* 248 F. Supp. 2d 912 (N.D. Cal. 2003), *rev'd sub nom.* LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364 (Fed. Cir. 2006), *rev'd sub. nom.* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008). On the question of whether a sale was "authorized," see *Gen. Talking Pictures Corp. v. W. Elec. Co.*, 305 U.S. 124, 126 (1938) ("[A]s [buyer] ordered, purchased and leased [patented products from licensee] knowing [licensee was not authorized to sell for that purpose], [buyer] also was an infringer.").

111. Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27, 31–32 (1931) (internal citations omitted) (opining that patent tie enabled

> [T]he patent-owner to "derive its profit, not from the invention on which the law gives it a monopoly, but from the unpatented supplies with which it is used" [and which are] "wholly without the scope of the patent monopoly." If a monopoly could be so expanded, the owner of a patent for a product might conceivably monopolize the commerce in a large part of [the] unpatented materials used in its manufacture. The owner of a patent for a machine might thereby secure a partial monopoly on the unpatented supplies consumed in its operation.).

112. Brulotte v. Thys Co., 379 U.S. 29, 33 (1964).

the initial sale of the primary monopoly product itself.[113] Or to say this differently, in any multi-stage distribution chain there is but a single monopoly profit to be earned. For example, customers' willingness-to-pay for the ice box in the *Carbice* case is a function of their willingness-to-pay for the ice box and dry ice combination. One who sells both products together can charge the monopoly price for one or the other or spread it over some combination of the two. But it cannot charge the full monopoly price for the box, predicated on a competitive price for the ice, and then charge a second monopoly price for the ice.

The first sale doctrine was historically justified by a variation of the leverage theory, but the Chicago School showed that one who owns a patented good subject to subsequent downstream resales or uses as a component in another product can charge a price in the primary transaction that gives it the full markup that is available from downstream purchasers or other users. To illustrate, suppose the patentee sells a patented microprocessor to Alpha Company, which places the chip on a memory circuit board and then sells the board to Beta Company, which installs the board as a component in a computer.[114] The patentee might be able to collect a $5 royalty from Alpha and use the license restriction to obtain an additional $3 royalty from Beta. Alternatively, it could charge the entire $8 markup to Alpha, who presumably would pass on the $3 charge in its transaction with Beta. But assuming that the profit-maximizing value of the royalties in this distribution chain is $8 for a single monopolist, the patentee could not profitably charge an $8 royalty to Alpha *plus* the $3 royalty to Beta. The first sale doctrine would require the patentee to obtain the entire $8 royalty charge from Alpha, leaving Alpha free to charge whatever it needed to in its secondary transaction with Beta, but the profit earned by patentee is substantially the same either way.

113. *See, e.g.*, Ward S. Bowman Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19 (1958); *see also* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §10.6a (3d ed. 2005). For a recent attempt to restore a version of the leverage theory, see Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397, 409–10, 431 n.89 (2009). For a reply defending the established arguments against leveraging, see Hovenkamp & Hovenkamp, *supra* note 9.

114. The facts loosely track those of the *Quanta* decision. *See* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 623–24 (2008).

2. Transaction Costs, Holdup, and Notice

In the simple story the first sale doctrine reduces downstream transaction costs: the patentee obtains its entire $8 in its initial transaction with Alpha, the first purchaser. If it obtains only $5 from Alpha it must then search out Beta, who purchases subsequently from Alpha, in order to collect the additional $3 of royalty that its patent position makes available. Further, the firms in Beta's position might be numerous and perhaps hard to identify. Indeed, spreading out the royalty obligation can create information costs on both sides. First, it may be difficult and costly for the patentee to identify the firms in Beta's position—certainly more difficult than simply charging the full royalty in the initial transaction with Alpha. Of course, to the extent this is a problem it seems to be self-correcting. Why would the patentee divide its royalty between Alpha and the Betas if it believed it would ultimately not be able to find and collect the full value of the Betas' royalty obligations? It would accordingly charge the full royalty to Alpha and leave Alpha to pass on whatever it could in its transactions with Beta.

The story on the other side of the transaction is somewhat different, particularly in a market in which license terms are difficult to discover. Suppose that the patentee assesses the post-sale license requirement in its initial transaction with Alpha but that subsequent Betas purchasing from Alpha do not all have notice of the restriction. They may pay Alpha too much because they find out only after the transaction has been consummated that they also owe $3 to the patentee. The fact that subsequent purchasers did not know about the restriction is generally not a defense in a patent infringement action.[115] As a result, they will take more of the patentee's chip than they would otherwise have purchased, or they may forego a rival's chip that would have been a better choice had they known the true cost of this patentee's chip.

An ineffectively communicated post-sale restriction can yield overconsumption by indirect purchasers because they did not have adequate notice of the restriction at the time they purchased the technology. This problem is potentially quite serious given that patent licenses, as opposed to patents themselves, are not recorded

115. Patent liability is a strict liability offense and lack of knowledge of the patent is not a defense; in cases of license restrictions, it essentially means the potential infringer has no license and therefore is guilty of infringement. *Cf.* Mark A. Lemley, *Should Patent Infringement Require Proof of Copying?*, 105 MICH. L. REV. 1525 (2007); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475 (2006); Carl Shapiro, *Prior User Rights*, 96 AM. ECON. REV. 92 (2006).

and publicized in a searchable form.[116] If the patentee can catch downstream violators by surprise it will be in a position to extract much higher royalty rates than it could if the infringement notification were more timely.[117] For example, computer assemblers selecting components from Intel without notice of the conditional sale from LG to Intel would make that choice on the premise that all IP rights necessary for the use of such products traveled with the sale. That would affect their decision to use Intel components rather than those of a rival. However, they might find out later that they owe another royalty to LG, only after they have made structural commitments to Intel's technology.

One reason for post-sale infringement claims, as in the *Quanta* case, may be to defer royalty negotiation until after the purchaser has made a commitment from which reversal is costly. If the patentee were required to charge its full royalty to the initial purchaser, who is uncommitted as to technology and in competition with others, then the royalty charged would reflect quite a different set of market realities.[118]

But this problem can be addressed by making timely notice a condition of enforcement, which was the approach that Justice Lur-

116. *See* Mark A. Lemley & Nathan Myhrvold, *How to Make a Patent Market*, 36 HOFSTRA L. REV. 257, 257 (2008); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2022 (2007); Richard H. Stern, *Post-Sale Patent Restrictions After Mallinckrodt – An Idea in Search of Definition*, 5 ALB. L.J. SCI. & TECH. 1, 12–19 (1994).

117. The situation is analogous to the patent holdup problem that occurs when a participant in a standard setting process surreptitiously files patent continuations on a previously existing patent, writing on technology that the standard setting organization is in the process of adopting, and surprising them with its patent after participants are locked in. *See, e.g.*, Rambus, Inc., No. 9302, 2006 WL 2330117 (F.T.C. Aug. 2, 2006), *vacated*, 522 F.3d 456 (D.C. Cir. 2008), *cert. denied*, 129 S. Ct. 1318 (2009); *see also* Hynix Semiconductor Inc. v. Rambus, Inc., 527 F. Supp. 2d 1084, 1103 (N.D. Cal. 2007) (refusing to strike pre-trial jury demand with respect to above described claims); Union Oil Co. of Calif., No. 9305, 2004 FTC LEXIS 115 (F.T.C. July 7, 2004) (discussing liability for misrepresentations made to a state agency in the process of promulgating standards); PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 712 (3d ed. 2008); JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 62–65 (2008); Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 79 n.62 (2004).

118. *Cf.* FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY, ch. 2, at 29 (2003), *available at* http://www.ftc.gov/os/2003/10/innovationrpt.pdf ("If . . . [a] producer learns that it has infringed a patent only after it has committed sunk costs to its . . . production—and [is] thus locked in to the effort—the patentee may be in a position to demand supra-competitive royalty rates.").

ton took for the Supreme Court in *Henry*. Although the Court set the first sale rule aside under the circumstances of that case, he limited infringement actions to situations where the purchaser had "notice that he buys with only a qualified right of use. He has a right to assume, in the absence of knowledge, that the seller passes an unconditional title to the machine, with no limitations upon the use . . . ."[119] As noted later, the law of real property servitudes requires either privity of contract or effective and timely notice as a prerequisite to enforcement,[120] and IP law should do the same.

In *Henry*, as in *Motion Picture Patents*, a notice of the requirement that purchasers of the machine use only the patentee's aftermarket products was attached to the machine,[121] so one can assume that the original purchaser of the machine had notice. Subsequent purchasers probably had notice as well, assuming that the notice had not been removed. What made *Henry* interesting, however, was that Henry himself was not a purchaser of the machine at all, but rather a stationer who sold ink to the machine's owner with knowledge and the "expectation" that the ink would be used in the machine in conflict with the notice restriction.[122] That makes the *Henry* facts a little unusual, because ordinarily an office supply store selling ink would not be in a position to know what kind of notice is printed on an ink-consuming machine back at the purchaser's office. A breach of contract action against *Henry* would not have worked, since he was not in privity of contract with A.B. Dick. Presumably, the Supreme Court would not have permitted A.B. Dick to pursue its infringement claim in the more typical case where the seller of a commodity had no knowledge of precisely how it was going to be used. However, the law of contributory infringement, unlike the law of direct infringement, does require notice, and clearly did so require when *Henry* was decided.[123]

In *Adams*, where the Supreme Court first developed the first sale rule, it did not discuss notice, although the lower court ap-

119. Henry v. A.B. Dick Co., 224 U.S. 1, 26 (1912), *overruled by* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917); *see also supra* text accompanying notes 56–60.

120. *See infra* notes 132–34 and accompanying text.

121. *Henry*, 224 U.S. at 11.

122. *Id.* at 11–12.

123. *See* 35 U.S.C. § 271(c) (2006). On the requirement in the early twentieth century, see *Cortelyou v. Charles E. Johnson & Co.*, 145 F. 933, 935–37 (2d Cir. 1906) (dismissing contributory infringement claim because defendant lacked notice of restriction), *aff'd*, 207 U.S. 196 (1907).

peared to assume that notice existed.[124] In *Bobbs-Merrill*, which applied the first sale rule, the license restriction limiting the resale price was printed in the copies of each book, so the subsequent seller clearly had notice of it, as the Court's opinion observed.[125] In the Federal Circuit's more recent *Mallinckrodt* decision, more or less following *Henry*, the infringement defendant had actual knowledge of the "single use only" restriction that it violated.[126] Because notice was not in dispute the court left for another day the question of what type of notice would be sufficient; clearly, however, it assumed that notice of some type was necessary.[127]

Most recently, in *Quanta* the first purchaser of the patented chip, Intel, had signed an agreement with the patentee promising to give notice to its own downstream purchasers about the restriction on use of the patented product in conjunction with non-Intel parts.[128] The Court also observed that Quanta, the downstream purchaser against whom the post-sale restraint would have been imposed, purchased with actual notice of the restriction.[129] The Court applied the first sale doctrine and refused to enforce the restraint notwithstanding the notice.[130]

To the extent that post-sale restraints have any social value, the first sale rule seems to be an excessive way of addressing any problem of lack of notice and the patent holdup that results. A much better solution would be to give the patentee the incentive to ensure that any person upon whom a post-sale restraint will be imposed has notice of the restraint prior to making a commitment from which extraction would be costly. The Federal Circuit recently adopted such an approach in a different setting, holding that one who lied about patents during a standard setting process in which its patented technology was adopted would later be equitably

124. *See* Adams v. Burke, 84 U.S. (17 Wall.) 453 (1873); Adams v. Burks, 1 F. Cas. 100 (C.C. Mass. 1871) (No. 50); *see also supra* notes 37–43 and accompanying text.

125. Bobbs-Merrill Co. v. Straus, 210 U.S. 339, 342 (1908)*; see also supra* notes 40–42 and accompanying text. The Supreme Court's brief opinion in *Cortelyou v. Charles Eneu Johnson & Co.*, 207 U.S. 196 (1907), dismissed an infringement suit whose facts were similar to *Henry*, because the defendant lacked notice of the restriction. The action was one of contributory infringement, however, which has its own independent notice requirement. *See id.* at 199.

126. Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 706–08 (Fed. Cir. 1992)

127. *Id.* at 706.

128. *See* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617, 623–24 (2008).

129. *Id.* at 624.

130. *Id.* at 637–38.

stopped from asserting those patents against the covered standard.[131] In the first sale context, the patentee would not be able to maintain its infringement suit against a subsequent purchaser or another who did not have objectively reasonable notice. If the original purchaser breached an agreement to provide notice to downstream purchasers, then the appropriate remedy would be a breach of contract action against the first purchaser.

The real property law of servitudes has coped quite well with a land use system that recognizes the value of both contract and remote (i.e., nonprivity) claims as enforcement vehicles. For example, suppose I sell you a parcel of land adjacent to my house, and impose on it a post-sale restraint that the land never be used for commercial purposes. This restriction can be enforced either as a "real covenant" or an "equitable servitude." The classic law of real covenants is contractual in nature and depends on privity—either privity of contract if the agreement is being enforced between the original parties, or "privity of estate," which acts as a substitute when one of the parcels of land has been transferred. For example, if you resold the parcel to X, who then began building a gasoline station on the property, I could enforce the covenant against X by showing that the restriction is contractual and that the transfer of the land from you to X created privity of estate between X and me, which would then substitute for privity of contract.[132]

However, privity would not be necessary if I had placed the no-commercial-use covenant in the deed and the deed had been properly recorded. In that case the restriction could be enforced as an equitable servitude against anyone with actual or constructive notice of the restraint, and privity would not matter.[133] Most courts hold that the servitude must be properly recorded in the chain of title of all persons against whom subsequent enforcement is sought.[134] The reasoning is fairly simple: it is much cheaper to record an interest in a known chain of title than it is to search many

131. Qualcomm, Inc. v. Broadcom Corp., 548 F.3d 1004 (Fed. Cir. 2008).

132. *See, e.g.*, SHELDON F. KURTZ & HERBERT HOVENKAMP, AMERICAN PROPERTY LAW 623–755 (5th ed. 2007).

133. Trustees of Columbia Coll. v. Lynch, 70 N.Y. 440 (1877) (enforcing recorded agreement between predecessors in title to build only single family homes on their respective lots, notwithstanding lack of privity); *see also* KURTZ & HOVENKAMP, *supra* note 132, at 623–755.

134. *See, e.g.*, Genovese Drug Stores, Inc. v. Conn. Packing Co., 732 F.2d 286, 290 (2d Cir. 1984); Witter v. Taggart, 577 N.E.2d 338, 340–41 (N.Y. 1991); Basore v. Johnson, 689 S.W.2d 103, 109 (Mo. Ct. App. 1985). For the analogy to patents, see Herbert Hovenkamp, *Notice and Patent Remedies*, 88 TEXAS L. REV. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1596789.

unknown ones. The same reasoning can be applied in the IP context. For example, the purchaser of a coffin would have to track down every patent covering it, determine whether the patent was still enforceable, and then query whether in some prior transfer to a component manufacturer the patentee had imposed a post-sale restraint.

If post-sale restraints serve potentially valuable functions and the only objection to post-sale restraints is that they can take subsequent users or purchasers by surprise, a notice requirement seems much more suitable to the problem than the more draconian route of forbidding such restraints altogether.

3. Intermediate Technology Transfers and Method Patents

Even under the expansive definition of the first sale doctrine revitalized in *Quanta*, not every post-transfer restraint on IP is unenforceable. The doctrine may not apply to "intermediate" transfers of IP rights, in particular when the transfer does not include any patented article at all, but only a license to manufacture.

Under the logic of the Supreme Court's first sale decisions, when the patentee sells a patented article it gives up its power as to that particular unit and only that unit. The patentee still controls the patent and other copies of the article that it may choose to make. By contrast, when the patentee licenses production rights to someone else there is no inherent limit on the number of patented articles that the licensee can make or what their disposition will be. That means that post-transfer conditions are essential and generally enforceable, including by means of infringement actions, unless they are anticompetitive or in violation of patent policy. However, the transfer of a single unit of a good subject to a further process covered by a method patent is still no more than a transfer of a single unit, and the scope of the restraint is limited accordingly.[135]

Under these principles:

1. Under the first sale doctrine, when a finished patented article is sold to the first purchaser the patentee's interests in

135. United States v. Univis Levins Co., 316 U.S. 241, 250–51 (1942) (holding that sale of uncompleted article together with implied license to method patent to finish it exhausted patentee's right "so far as it is or may be embodied in that particular article"). Contrast this with the Federal Circuit's rather categorical holding that method patents are not subject to exhaustion, LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364, 1370 (Fed. Cir. 2006) (relying on Glass Equip. Dev., Inc. v. Besten, Inc., 174 F.3d 1337, 1341 n.1 (Fed. Cir. 1999)), *rev'd sub nom.* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008); Bandag, Inc. v. Al Bolser's Tire Stores, Inc., 750 F.2d 903, 924 (Fed. Cir. 1984).

that copy of the article are at an end; any limitations on further disposition of the article are governed by contract law and state public policy concerning restraints on alienation.

2. When the patentee sells an unfinished article that requires application of the patentee's method patents in order to make that particular copy of the article useable or marketable the first sale doctrine also applies. Further, both the technology embodied in the article and the process patents needed to finish it are exhausted as to that copy. That is the only way to make sense of the Supreme Court's conclusion in *Quanta* that the first sale decision applies to method patents.[136] One way to view this problem is to say that the sale of the unfinished good requiring further application of the defendant's patented method carries with it an implied license to the purchaser to finish that particular copy of the good, and exhaustion applies to both the article and the attached method license.[137]

3. When the subject of the license is not a finished or semi-finished article but rather a general license to use the patentee's method, process, or technology to produce articles "in gross," the first sale doctrine does not ordinarily apply to the licensing of the process itself. However, if the patentee places restraints on the disposition of articles made by the licensee under the patent, the sale of those goods exhausts the patent with respect to them; that is, authorized sales of the article by the licensee are also subject to exhaustion with respect to the article sold.

These rules rest on principles that date back to Blackstone's distinction between land interests "appurtenant" and "in gross," particularly in relation to commons property. As Blackstone observed, if farmers share grazing rights on commons that is appurtenant to their own farms, then their use is naturally limited: they cannot graze more cattle on the commons than their own farms support. However, if they own commons "in gross," or personally, then there is no natural limit on their use of the common right, and artificial limits have to be imposed.[138]

136. *See Quanta*, 553 U.S. at 628–29 (2008).

137. *Cf.* Julia E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 30–35 (2001) (discussing implied licenses and exhaustion in the context of reverse engineering).

138. *See* 3 WILLIAM BLACKSTONE, COMMENTARIES *237–38:

> Another disturbance of common is by surcharging it; or putting more cattle therein than the pasture and herbage will sustain, or the party hath a right to do. In this case he that surcharges does an injury to the rest of the owners, by

Blackstone's distinction is applied today in the law of real property easements and covenants. An easement appurtenant is attached to and benefits a particular piece of land and cannot be used except to benefit that land.[139] By contrast, an easement in gross is personal to the grantor, creating the possibility of excessive use. The common law responded by making easements in gross indivisible,[140] while an easement appurtenant could be divided when the dominant estate to which it was attached was divided.[141]

The sale of an unfinished article along with the implied license to finish it is akin to an easement appurtenant, which creates a license to improve or finish, but only with respect to the article being transferred. By contrast, the mere license of the right to make a good is incorporeal and could be used without limit unless limits are expressly attached to it. The first sale rule properly applies to the sale of the unfinished good with the single use license because the only thing that is taken from the patentee is the patent protection with respect to that unit. Exhaustion does not properly apply to the incorporeal interest, however, because once the interest is created there is nothing inherent in it that prevents the licensee's rights from swallowing up the whole. In *Adams v. Burke*, for example, the patentee could license another to manufacture coffin lids and place any territorial limits he pleased. That is the way a patentee could organize production in conjunction with its licensee.[142] But he could not sell a finished lid subject to a territorial limitation on where it could be used, and if the lid were unfinished and required a patent license in order to finish it, he could not place a

depriving them of their respective portions, or at least contracting them into a smaller compass. This injury by surcharging can properly speaking only happen, where the common is appendant or appurtenant, and of course limitable by law; or where, when in gross, it is expressly limited and certain: for where a man hath common in gross . . . he cannot be a surcharger.

139. *See, e.g.*, Penn Bowling Recreation Center v. Hot Shoppes, Inc., 179 F.2d 64, 66 (D.C. Cir. 1949) (applying common law rule forbidding owner of an easement in gross from using it to benefit lands other than the dominant estate).

140. *See, e.g.*, Miller v. Lutheran Conference & Camp Ass'n, 200 A. 646, 651 (Pa. 1938). The classic discussion is *Lord Mountjoy's Case*, [1583] 78 Eng. Rep. 11 (K.B.), which held that an interest in gross could not be divided unless the multiple parties operated it as "one stock," that is, a single enterprise such as a joint venture or partnership. For a detailed application of the decision in the United States, see *Chandler v. Hart*, 119 P. 516, 520–22 (Cal. 1911); *see also* Lewis Mallalieu Simes, *The Assignability of Easements in Gross in American Law*, 22 MICH. L. REV. 521, 528 (1924).

141. *See, e.g.*, Martin v. Music, 254 S.W.2d 701, 703 (Ky. 1953).

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

territorial limitation on the process insofar as it covered that particular lid.

The first sale rule thus served to distinguish situations in which the patentee was able to appropriate the value of the invention from those in which it was not.[143] A pure manufacturing license without a post-contract restriction would place no limit on the licensee's ability to produce as much as it wished and sell wherever and to whomever it pleased. By contrast, when a single copy of the patented good is sold, the patentee is able to appropriate the full value of that copy in the purchase price. Purchase of a single unit does not permit the buyer to make other copies or license others to make copies; it does not even permit buyers to "reconstruct" the patented good when it wears out.[144]

Of course, this is an argument for permitting post-sale restraints on manufacturing licenses; it is not necessarily an argument for prohibiting post-sale restraints on the sale of individual copies of goods that are protected by IP rights. The rationale for the prohibition requires some reason why they are socially harmful.

The Supreme Court's decisions involving transfers of intermediate patent rights—that is, something falling short of the finished good—are consistent with these Blackstonian principles. First, the Court's 1926 decision in *United States v. General Electric Co.* held that a patentee's pure manufacturing license did not exhaust any rights in the patent.[145] GE sold Westinghouse a license to manufacture light bulbs covered by its patent; GE did not sell Westinghouse the light bulbs themselves. The Court held that GE could stipulate the price at which Westinghouse sold those bulbs to consumers. Thus even a RPM agreement—per se unlawful at the time as a matter of antitrust law[146]—would be upheld if it was found to be within the patent grant.

143. *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 125–27, 297–306 (2003); Yonatan Even, *Appropriability, First Sale & Exhaustion* (Sept. 28, 2008) (unpublished manuscript), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1274822.

144. In general, the purchaser of a patented good may repair it but not "reconstruct" it. Making the distinction has proven extraordinarily difficult. *See, e.g.*, Jazz Photo Corp. v. Int'l Trade Comm'n, 264 F.3d 1094, 1102–05 (Fed. Cir. 2001) (discussing the differences with respect to patented disposable cameras intended for a single use but technologically capable of being refurbished).

145. United States v. Gen. Elec. Co., 272 U.S. 476, 490 (1926) (first sale doctrine did not apply to restriction placed on manufacturing licensee as opposed to one who purchased the patented product).

146. Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373, 408 (1911), *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007).

Both *Univis Len*s and *General Talking Pictures* involved more complex arrangements, including transfers of an intermediate article and a license to apply a patented process.[147] The Supreme Court applied the first sale doctrine in the first case but not the second.[148]

In *Univis*, the Supreme Court's most recent application of the first sale rule prior to *Quanta*, the defendant patentee sold lens blanks for use in bifocal eyeglasses. The lens blanks were not useable in glasses as sold, but had to be ground to meet the wearer's prescription needs before they could be mounted into frames.[149] Univis' patents extended not only to the lenses but also to the grinding technology used by purchasers of the raw lenses.[150] Univis sold the lens blanks subject to a RPM restriction that the Court ultimately found unlawful, but only after an intermediate finding that the restriction violated the first sale rule.[151]

The Supreme Court conceded that the patented article was not "finished" and was necessarily subject to future refinements that were also covered by Univis' patents. Nevertheless, "the only use to which it could be put and the only object of the sale is to enable the latter to grind and polish it for use as a lens by the prospective wearer."[152] That is, implicit in the sale of the lens blank was a right given to the purchaser to employ Univis' grinding technology in order to turn that particular blank into a marketable set of eyeglasses. The right to finish was "appurtenant," in Blackstone's terminology, to the particular copy of the patented article that the purchaser bought.[153] The process license and the blanks were tied

147. United States v. Univis Lens Co., 316 U.S. 241 (1942); Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 124 (1938).

148. *See Univis*, 316 U.S. at 250; *Gen. Talking Pictures Corp.*, 305 U.S. at 127.

149. *Univis*, 316 U.S. at 244–45.

150. *Id.* at 249.

151. *Id.* at 250–52.

152. *Id.* at 249.

153. *See id.* at 251:

> Our decisions have uniformly recognized that the purpose of the patent law is fulfilled with respect to any particular article when the patentee has received his reward for the use of his invention by the sale of the article, and that once that purpose is realized the patent law affords no basis for restraining the use and enjoyment of the thing sold . . . . 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.

together in a one-to-one ratio. Key to the Court's decision was that the lens blank was useless unless subjected to the defendant's patented method for grinding it into a finished lens. In that case, it saw the purchase of the unfinished lens as "inherently" including the right to complete the process needed in order to bring the lens to market.[154]

The analogy has been applied to software patents. While making a copy of a patented article is typically infringement, one cannot use computer software without making a temporary copy of part of the software code. This code resides in the computer while the software is being used. Prohibiting such "copying" would effectively make the software useless.[155] But consistent with *Univis*, software that was sold subject to this implied license could itself be subject to the first sale doctrine, prohibiting the patentee from imposing post-sale restraints via the threat of infringement actions.[156]

In contrast, the Supreme Court presented *General Talking Pictures* as concerned not with the sale of a patented device, but rather with a license to manufacture a finished combination, in this case a sound system subject to a post-sale field-of-use restriction for non-

154. *See id.* at 249:

> . . . it is plain that where the sale of the blank is by the patentee or his licensee—here the Lens Company—to a finisher, the only use to which it could be put and the only object of the sale is to enable the latter to grind and polish it for use as a lens by the prospective wearer. An incident to the purchase of any article, whether patented or unpatented, is the right to use and sell it, and upon familiar principles the authorized sale of an article which is capable of use only in practicing the patent is a relinquishment of the patent monopoly with respect to the article sold.

See also Dawson Chem. Co. v. Rohm & Haas Co., 448 U.S. 176, 186 (1980) (implicitly accepting that sale of *un*patented chemical with no use other than that in conjunction with the seller's patented method exhausted method patent with respect to that combination); Ethyl Gasoline Corp. v. United States, 309 U.S. 436, 452 (1940) (finding that first sale rule covered gasoline additive and method patent for burning it).

155. *See* Cohen & Lemley, *supra* note 137, at 32. For a discussion of the problems involved in treating the automatic copy-making as direct patent infringement, see Keith E. Witek, *Software Patent Infringement on the Internet and on Modern Computer Systems—Who Is Liable for Damages?*, 14 SANTA CLARA COMPUTER & HIGH TECH. L.J. 303, 369–71 (1998).

156. Of course, breach of contract suits for violations of a valid license agreement might still be possible. *See* ProCD, Inc. v. Zeidenberg, 86 F.3d 1447 (7th Cir. 1996). The *ProCD* decision has not been without its critics, however. *See, e.g.*, Bohannan, *supra* note 1, at 632 (criticizing *ProCD* for sweeping too broadly); Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111, 147–50 (1999) (criticizing *ProCD* decision for failure to confront preemption issue).

commercial use.[157] The Court upheld the restriction with scant reference to the first sale doctrine.[158] The Court distinguished earlier first sale cases in two ways: (1) as in *General Electric*,[159] the patentee did not sell a patented product to the first buyer but rather licensed that buyer to manufacture the patented product, subject to the field-of-use restriction; (2) the licensee then sold the finished product without restriction in violation of the license agreement. As a result of (2), the first sale of a completed good in the transaction was not "authorized" by the patentee, and thus the first sale rule did not attach.[160]

Another distinction between *Univis* and *General Talking Pictures* is more relevant to competition policy. *Univis* involved a restriction on the resale price that resellers of the patented lenses were required to charge. At the time resale price maintenance was unlawful per se under the Sherman Act.[161] Read together, *Univis* and the Supreme Court's 1926 *General Electric* case stand for two propositions. First *Univis* declares that one may not sell a good, even if unfinished, and impose RPM on resellers, if the unfinished good has no use unless the patented process is applied to it; in that case the license is appurtenant to the good. By contrast, a pure manufacturing license that is not appurtenant to the sale of a good fails to exhaust the patent and thus the licensor is free to impose additional limits enforceable by infringement actions. However one characterizes the transaction in *General Talking Pictures*, the field-of-use restraint at issue was a vertical nonprice restraint, and the Su-

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

158. *See id.* at 125–27.

159. United States v. Gen. Elec. Co., 272 U.S. 476 (1926).

160. In a strong dissent Justice Black, joined by Justice Reed, argued that the first sale doctrine should have applied. *See Gen. Talking Pictures*, 305 U.S. at 128 (Black, J., dissenting). Indeed, according to the district court's opinion the licensee purchased vacuum tubes manufactured by the patentee and the boxes containing the tubes bore the challenged field-of-use restriction. *See* W. Elec. Co. v. Gen. Talking Pictures Corp., 16 F. Supp. 293, 295 (S.D.N.Y. 1936). It then manufactured the amplifiers employing these tubes, under license from the patentee. It appears that the tubes could be used in any amplifier manufactured by the patentee as well as the amplifiers of others. The Government emphasized this point in its amicus brief to the Supreme Court in *Quanta*. *See* Brief for the United States as Amicus Curiae Supporting Petitioners at 17, Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008) (No. 06-937), 2007 WL 3353102.

161. Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373, 408 (1911), *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007).

preme Court had not yet determined the appropriate antitrust response to these.[162]

The Federal Circuit largely disregarded these distinctions when it concluded quite categorically that when a patented good is subject to further application of a patented method the transaction is not subject to the first sale doctrine, for sale of the device does not exhaust the patentee's interest in it.[163] In its *Quanta* decision, the Supreme Court categorically held that the first sale doctrine applies to method patents attached to an article or device with almost no discussion of the policy implications.[164] Neither line of decisions does much to illuminate the important issues.

4. *Mallinckrodt* and the Durability Problem

The Federal Circuit's now overruled *Mallinckrodt* decision had departed from Supreme Court precedent by permitting a patentee to enforce a post-sale restraint on some patented articles by distinguishing unconditional from conditional sales.[165] Further, the condition could be enforced by either a breach of contract action or a patent infringement action.[166]

The restriction in question prohibited the purchaser of a medical device from reusing it.[167] Although such a restriction could have different explanations, it was very possibly the patentee's attempt to address a durable goods problem.[168] The monopolist or oligopolist tries to avoid durability because it fears that its own product will

162. Antitrust challenges to vertical nonprice restraints emerged in the early 1960s, after which the Court changed its mind twice. *See* White Motor Co. v. United States, 372 U.S. 253, 261 (1963) (declining to condemn vertical nonprice restraints); United States v. Arnold, Schwinn & Co., 388 U.S. 365 (1967) (condemning vertical nonprice restraints under per se rule), *overruled by* Continental T.V. v. GTE Sylvania, Inc., 433 U.S. 36, 57–59 (1977) (overruling *Schwinn* and applying rule of reason to vertical nonprice restraints instead of per se rule).

163. *See* LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364, 1371 (Fed. Cir. 2006), *rev'd sub nom.* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008); Glass Equip. Dev., Inc. v. Besten, Inc., 174 F.3d 1337, 1341 n.1 (Fed. Cir. 1999); Bandag, Inc. v. Al Bolser's Tire Stores, Inc., 750 F.2d 903, 924 (Fed. Cir. 1984).

164. *Quanta*, 553 U.S. at 628–30.

165. Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 708 (Fed. Cir. 1992), *abrogated by* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008).

166. *See id.* at 701.

167. The decision seems directly at odds with the Supreme Court's decision a century earlier in *American Cotton-Tie Co. v. Simmons*, 106 U.S. 89 (1882), where the Court applied the first sale doctrine to invalidate a patentee's restriction on reuse of a belt buckle subject to a single use limitation.

168. For one early observation of the problem, see Edward H. Chamberlin, *The Product as an Economic Variable*, 67 Q.J. ECON. 1, 23–24 (1953), observing that,

come back to compete with itself. As a result it may resort to such tactics as leasing rather than selling its output.[169] For example, in *United Shoe Machinery*,[170] *Xerox*,[171] and *IBM*,[172] when they controlled the markets in their respective durable products, they leased rather than sold them. In that case no competitive market arises for the used good. In a perfectly competitive market, competition would force the firms to sell if selling were cost effective and what customers wanted.

In a well-functioning market the patentee monopolist should be able to capture the full value of all downstream uses and reuses of its good—that is, the purchaser who intends to use it multiple times would be willing to pay the present value of repeated future uses, less anticipated costs.[173] Of course, these incentives may be altered in markets with agency problems such as third-party payment, which characterizes the medical industry generally.

One possible justification for the single use only restriction rests on the observation that inherent in the patent grant is the right to limit output. A patentee has the right to produce any amount of the patented good it pleases, right down to zero.[174] A single use restriction is in fact a type of output reduction. At its

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> [B]ecause durability can be varied, a producer has to face the question of how durable to make his product. Evidently if he makes it too durable, as soon as people have bought one unit they will not need another for a substantial period during which there will be no "repeat demand" for his product. He has an interest then in making it less durable so that people will come back that much sooner . . . .

For a comprehensive review and critique, see Barak Y. Orbach, *The Durapolist Puzzle: Monopoly Power in Durable-Goods Markets*, 21 YALE J. ON REG. 67 (2004).

169. *See* Ronald H. Coase, *Durability and Monopoly*, 15 J.L. & ECON. 143 (1972); *see also* Michael Waldman, *Durable Goods Theory for Real World Markets*, 17 J. ECON. PERSP. 131 (2003).

170. United States v. United Shoe Mach. Corp., 110 F. Supp. 295, 297 (D. Mass. 1953), *aff'd mem.*, 347 U.S. 521 (1954) (per curiam). For a critique, see Scott E. Masten & Edward A. Snyder, *United States versus United Shoe Machinery Corporation: On the Merits*, 36 J.L. & ECON. 33 (1993).

171. *See In re* Xerox Corp., 86 F.T.C. 364, 364 (1975); Timothy F. Bresnahan, *Post-Entry Competition in the Plain Paper Copier Market*, 75 AM. ECON. REV. 15, 16 (1985).

172. United States v. Int'l Bus. Machs. Corp., 1956 Trade Cas. (CCH) ¶ 68, 245 (S.D.N.Y. 1956); FRANKLIN M. FISHER, ET AL., FOLDED, SPINDLED AND MUTILATED: ECONOMIC ANALYSIS IN U.S. v. IBM 191–95 (1983).

173. *See* Wolfhard Ramm, *On the Durability of Capital Goods Under Imperfect Market Conditions*, 64 AM. ECON. REV. 787 (1974).

174. *See* Continental Paper Bag Co. v. E. Bag Co., 210 U.S. 405, 429 (1908) (patentee has right to bring infringement action even though it is not practicing the patent in question).

choosing, the patentee could make 1000 copies of its good or 100. If it makes 100, it can impose a single use restriction, thus limiting the right of purchasers to turn that 100 into 200 or more by using each copy two or more times.

But single use restrictions can be more harmful than simple output restrictions because they consume actual resources. Suppose a patented good is capable of being used twice before it wears out and under competition 1000 copies of the good, or 2000 uses, would be sold. Suppose further, however, that the patentee maximizes its profits by cutting output back to 1000 uses and setting a higher royalty rate. It could attain this result either by (1) producing 500 copies of the good without a restriction, leading each customer to use a copy twice; or (2) producing 1000 copies of the good but imposing a single use restriction on each. While both alternatives yield 1000 uses, the second one consumes more resources. In that case the single use restriction is a socially harmful solution to the durability problem. It not only prevents the rise of a used goods market but limits the use of each good to a single cycle.

Of course, to the extent such conduct is costly, it would also seem to be self-deterring. Why would the manufacturer produce 1000 units of the good subject to single use restrictions when it could obtain the same price by producing 500 units and permitting customers to use them twice? Further, there might be perfectly good technological reasons for such a limitation. Perhaps the device would be hazardous or unreliable if reused and could not effectively be refurbished. The defendant in *Mallinckrodt* apparently thought otherwise, for it was in the business of refurbishing the medical device in question, and hospitals were willing to purchase the refurbished units. The patentee stated that there were reasons related to health and liability for prohibiting reuse, but the Federal Circuit found it unnecessary to inquire into the merits of these explanations.[175]

175. The device in question delivered therapeutic radioactive material into the lungs in the form of an aerosol mist, as part of a treatment for pulmonary disease. Use of the device contaminated it with the radioactive materials as well as other possibly harmful materials, and refurbishing included a radiation sterilization process. Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 701, 701–02 (1992). The Federal Circuit went on to reverse the lower court's summary judgment ruling that the patents were unenforceable based on the single use restriction. *Id.* at 709.

The Lexmark print cartridge litigation also addressed single use restrictions and refurbishment. The restrictions in that case were originally allowed. *See* Ariz. Cartridge Remanufacturers Ass'n, Inc. v. Lexmark Int'l, Inc., 421 F.3d 981, 988 (9th Cir. 2005) (upholding patentee's restriction on its printer cartridges, requiring the cartridges be returned after single use in exchange for price discount);

By not asking whether the restraint on reuse was technologically justified, the Federal Circuit effectively concluded that the patent grant contained within it the power to force post-sale users to use the product inefficiently. This social cost would undoubtedly be largest if Mallinckrodt were a monopolist in the device. But it could be substantial even if the device were sold by a non-monopolist in a product differentiated market. The most likely explanation for why hospitals might accept Mallinckrodt's terms is that a third-party payment mechanism for health insurance covered the device, thus reducing the transparency of true costs.

At the same time, the first sale rule, which operates as a per se restraint, seems excessive given the self-deterring nature of harmful reuse restrictions and the alternative explanations for at least some of them. Rule of reason analysis under the antitrust laws or perhaps patent misuse doctrine seems more appropriate to the task. Indeed, the first sale doctrine as *Quanta* revitalized it would not even approve a post-sale restraint on reuse in cases where reuse was dangerous. A patentee could certainly warn against reuse, but it could not restrain reuse by means of a patent infringement suit. To be sure, *Quanta* might permit the patentee to maintain a breach of contract suit to enforce the single use restriction, but enforcement would depend on the vagaries of the privity requirement. For example, if the hospital disposed of the device after a single use but the waste disposal firm sold them to a renewal firm, a contract claim could not run against the latter even though notice was clear.

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accord Static Control Components, Inc. v. Lexmark Int'l, Inc., 487 F. Supp. 2d 830, 847–48 (E.D. Ky. 2007) (inferring non-exhaustion from fact that patentee received lower price for cartridges subject to single-use restriction than for other cartridges and therefore patentee did not receive full reward for lower price cartridge). However, in the wake of *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (2008), the court changed its mind and held that the first sale doctrine applied so as to invalidate the tie. *See* Static Control Components, Inc. v. Lexmark Intern., Inc., 615 F. Supp. 2d 575, 576–77 (E.D. Ky. 2009).

For other cases on patent exhaustion and reuse, see Jazz Photo Corp. v. Int'l Trade Comm'n, 264 F.3d 1094 (Fed. Cir. 2001) (design patent exhausted by unrestricted sale; not infringement for foreign firm to repair patentee's "single use" camera for reuse); Kendall Co. v. Progressive Med. Tech., Inc., 85 F.3d 1570, 1574–75 (Fed. Cir. 1996) (refusing to infer prohibition on reuse from simple fact that one element of patented product was spent with each use; device itself capable of roughly three years use); Monsanto Co. v. Scruggs, 459 F.3d 1328 (Fed. Cir. 2006), *cert. denied*, 549 U.S. 1342 (2007) (exhaustion did not apply to self-replicating seed where second generation seed was identical to first generation; because the second generation seed was never sold at all, patent was not exhausted; further use of the seed required a license from the patentee); Monsanto Co. v. McFarling, 302 F.3d 1291 (Fed. Cir. 2002).

5. Price Discrimination

Price discrimination occurs when a seller obtains different ratios of price to marginal cost from different buyers. Price discrimination is generally said to come in three kinds, or "degrees." Virtually all instances of actual price discrimination are either third-degree or second-degree discrimination.

In third-degree price discrimination the seller is able ex ante to segregate customers into different groups based on the group's willingness to pay and offer different prices to different groups. A common example in the IP context is offering different prices to commercial and personal users, as in both *General Talking Pictures* and *ProCD*.[176] One characteristic of third-degree price discrimination is a discontinuity in buyer substitution that denies the good to some high-value purchasers while giving the good to others for whom the good is less valuable. For example, if I charge commercial purchasers of my sound amplifiers $1000 and personal users $500, the commercial users will purchase down to the point that their marginal value reaches $1000 and no more. A commercial user who values the next amplifier at $950 will not buy it even though other users, the personal ones, are actually buying at a price of $500. So a $950 purchaser is turned away while a $500 is served. This denial to high-value purchasers and sale to low-value purchases means that third-degree price discrimination reduces welfare unless the seller brings in new purchasers under the price discrimination scheme. As a result, economists since at least Arthur Cecil Pigou have concluded that third-degree price discrimination reduces welfare unless it increases total market output.[177]

By contrast, second-degree price discrimination occurs when the seller offers a price schedule with differing prices. Customers self-select the price by choosing where to place themselves on the schedule. Quantity discounts are an example, as are divisions between first and coach class airline tickets to the extent that price differences are not proportional to cost differences. Variable proportion tying arrangements, in which different customers use the tied product in differing amounts, are an instance of second-degree price discrimination because the tying product is offered at one price to everyone and so is the tied product. Customers "select" the rate of return the arrangement produces to the seller by choosing

176. Gen. Talking Pictures Corp. v. Western Elec. Co., 305 U.S. 124 (1938); ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1449 (7th Cir. 1996).

177. *See* ARTHUR CECIL PIGOU, THE ECONOMICS OF WELFARE, II.14.13 (4th ed. 1932); Marius Schwartz, *Third-Degree Price Discrimination and Output: Generalizing a Welfare Result*, 80 AM. ECON. REV. 1259 (1990).

the number of tied units to purchase.[178] For example, in a printer/ink cartridge tie the seller typically cuts the price of the printer from its standalone profit maximizing level, builds a monopoly overcharge into the ink cartridge, and then requires all users of the printer to purchase its cartridges.[179] The result is that monopoly returns on the printer/cartridge package are higher for higher volume users. However, everyone purchases ink cartridges down to the point that marginal value equals the purchase price, with the purchase price being the same for all. So for example, if the printer manufacturer reduces the price of the printer and increases the price of tied ink cartridges from $15 to $20, every buyer will purchase down to the point that the marginal value of a cartridge to her equals $20. This distinctive feature of second-degree price discrimination has produced some confusion in the antitrust literature. It is not the case that variable proportion ties systematically transfer output from higher- to lower-value customers; only third-degree price discrimination does that.[180] To be sure, variable proportion ties typically result in a reduced price for the tying product and a higher price for the tied product, and this is a distortion from perfect competition. But it is not the same distortion that third-degree price discrimination produces.[181]

The final type of price discrimination is first-degree, or "perfect" price discrimination, which occurs when a seller is able to sell each unit at the highest price that any buyer is willing to pay for it. Variable proportion ties almost never come close to being first-degree price discrimination. While a highly accurate variable proportion tie might be able to meter the relationship between consumer value and the number of units a customer uses, it cannot capture the residual value that different customers place on the good. To illustrate, both a printer of handbills for garage sales and a law firm printing offering statements for IPOs might require precisely 1000 pages of printing per week. After that, their willingness to pay falls sharply. If they purchase identical printers under identical ties they will end up paying the same amount. However, the garage sale printer might value the printouts at very close to the incremental

178. *See, e.g.*, JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 147 (1988); Richard A. Posner, *Vertical Restraints and Antitrust Policy*, 72 U. CHI. L. REV. 229, 236 (2005).

179. *See, e.g.*, *Static Control Components*, 615 F. Supp. 2d at 576–77 (applying first sale doctrine to invalidate printer/ink cartridge tie).

180. *Cf.* Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397, 431 n.89 (2009) (suggesting that variable proportion ties reallocate output from high-value to low-value users).

181. *See* Hovenkamp & Hovenkamp, *supra* note 9 (manuscript at 10).

price of, say, 3 cents per page, while the law firm values them at $12 per page. In that case there will be a great deal of unclaimed consumer surplus remaining from the law firm purchaser and the price discrimination scheme must be classified as second-degree.

Most variable proportion ties involve a price reduction in the tying product, sometimes to the competitive level and sometimes even to zero, accompanied by an increase in the price of the tied product.[182] Depending on the magnitude of (1) the price cut in the tying product, (2) the price increase in the tied product, and (3) the output effects, a variable proportion tie can either increase or decrease both general and consumer welfare.[183] Further, since there are three variables, not just one, it is impossible to make categorical judgments about the relationship between output and welfare. In any event, most price discrimination ties probably increase output, and many do so substantially.[184] In such cases there is no warrant for believing they are harmful to either general welfare or consumer welfare. Further, their profitability does not depend on the exclusion of any rival, and price discrimination ties are common even in moderately competitive markets, such as fast-food franchising.[185] As a result there is no warrant for condemning them as a matter of competition policy, and certainly not with a categorical per se rule.

The 1912 *Henry* decision was the last occasion that the Supreme Court refused to apply the first sale rule to the sale of a patented good subject to a variable proportion tie.[186] In that case the manufacturer sold mimeograph machines at below cost and recouped its profits on overcharges on the consumable supplies.[187]

182. Virtually every decision that has discussed the issue has indicated that the defendant reduced rather than increased the price of the tying product when it engaged in tying. *See id.* at *18–19. For an example of a zero price tying product, see Kentmaster Mfg. Co. v. Jarvis Prods. Corp., 146 F.3d 691 (9th Cir. 1998), *amended by* 164 F.3d 1243 (9th Cir. 1999) (defendant provided durable meat cutting equipment at no charge to meat cutters but charged high prices for aftermarket parts); *see also* Xerox Corp. v. Media Scis., Inc., 660 F. Supp. 2d 535, 539 (S.D.N.Y. 2009) ("As is true of other printer manufacturers, Xerox generally sells its printers at a low margin or a loss, hoping to earn a profit through later sales of high-margin ink.").

183. *See* Hovenkamp & Hovenkamp, *supra* note 9 (manuscript at 19–28).

184. *See id.* at 6.

185. *See, e.g.*, Siegel v. Chicken Delight, Inc., 448 F.2d 43 (9th Cir. 1971).

186. Henry v. A.B. Dick & Co., 224 U.S. 1 (1912), *overruled by* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917); *see also supra* notes 54–57 and accompanying text.

187. The lower court's decision discusses the facts of the case. *See* A.B. Dick Co. v. Henry, 149 F. 424, 425 (C.C.N.Y. 1907) ("The evidence establishes that the

Henry was overruled by *Motion Picture Patents*, which involved yet another variable proportion tying arrangement that facilitated price discrimination.[188] Since *Motion Picture Patents* was decided, patentees have largely relied on contract restrictions to impose ties rather than post-sale restraints—a result that the Supreme Court itself suggested in that case.[189] Otherwise they have avoided the first sale rule by leasing the patented durable goods rather than selling it.[190]

The Patent Misuse Reform Act of 1988 provides that patent ties of this sort are not misuse unless the patentee has market power in the patented tying product.[191] Interestingly, that provision appears to permit patent ties accompanying the sale of a patented product, in violation of the first sale doctrine. The provision states that a patentee will not be guilty of "illegal extension of the patent right" if it "conditioned . . . the sale of the patented product on the . . . purchase of a separate product" unless the patentee has market

complainants sell the machines at a loss, less than the actual cost of making, relying on sales of supplies therefor for a profit."); *see also* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 516 (1917) (noting patentee's argument that the public benefitted "by the sale of the machine at what is practically its cost").

188. *Motion Picture Patents*, 243 U.S. at 516; *see also supra* notes 57–58 and accompanying text.

189. *See Motion Picture Patents*, 243 U.S. at 509 ("The extent to which the use of the patented machine may validly be restricted to specific supplies or otherwise by special contract between the owner of a patent and the purchaser . . . [is] a question outside the patent law . . . ."). For an example, see *Illinois Tool Works Inc. v. Independent Ink, Inc.*, 547 U.S. 28 (2006) (refusing to condemn a tie of a patented printer to unpatented ink after overturning presumption that patented tying product confers market power). While the patentee in *Illinois Tool Works* initially took the position that the ink was covered by its patent it later amended that position and what had started out as an infringement action became an antitrust challenge to the license agreement. *See* Indep. Ink, Inc. v. Ill. Tool Works, 396 F.3d 1342, 1345 (Fed. Cir. 2005).

190. *See, e.g.*, Int'l Salt Co. v. United States, 332 U.S. 392 (1947) (leased machines with provision requiring lessee to use patentee's salt); Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488, 489 (1942) (finding patent misuse when patent holder leased salt injecting machine with lease provision requiring lessee to use the patentee's salt tablets); Int'l Bus. Machs. Corp. v. United States, 298 U.S. 131 (1936) (lease requiring lessees of tabulating machines to use lessor's punch cards).

191. 35 U.S.C. § 271(d)(5) (2000), providing that a patentee shall not be deemed guilty of misuse or illegal extension of the patent if it has:

> [C]onditioned the license of any rights to the patent or the sale of the patented product on the acquisition of a license to rights in another patent or purchase of a separate product, unless, in view of the circumstances, the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned.

power.[192] Since *Quanta* involved exclusive dealing and not tying, this provision was not implicated. However, in *Motion Picture Patents* the sale of the patented projector was conditioned on the purchase of a separate product.[193] As the *Motion Picture Patents* decision described the first sale doctrine, it clearly involved an improper extension of the patent right.[194] Indeed, while the "illegal extension of the patent" concern has been widely stated in misuse law,[195] it actually originated in first sale law.[196] So it is difficult to escape the conclusion that the Patent Misuse Reform Act operates to create a statutory exception to the first sale doctrine for tying arrangements. Nevertheless, no decision of which I am aware has interpreted the statute in that way. In any event, the antitrust law governing ties has evolved significantly and today regards them as relatively benign.[197] By contrast, the first sale doctrine recognizes no exception for competitively harmless restraints.

The statutory misuse provision and the permissive attitude of modern antitrust law should not be read as a broad congressional policy of permitting price discrimination by means of variable proportion tying arrangements. The Patent Misuse Reform Act exonerates patent ties from misuse claims only when the seller lacks market power in the patented product, and at least minimal market power is necessary for price discrimination.[198] In *Illinois Tool Works* the Supreme Court equated this requirement for misuse with the antitrust laws as well.[199] By contrast, assuming that the Patent Misuse Reform Act does not create an exception, the first sale doctrine applies what is effectively a per se rule to price discrimination ties on patented goods without any inquiry into market power or anticompetitive effects.

While second-degree price discrimination is the typical result of variable proportion tying arrangements, third-degree price dis-

192. *Id.*

193. *Motion Picture Patents*, 243 U.S. at 506 (1917); *see supra* notes 92–97 and accompanying text.

194. *Id.* at 516 ("[T]he exclusive right granted in every patent must be limited to the invention described in the claims of the patent, and that it is not competent for the owner of a patent, by notice attached to its machine, to, in effect, extend the scope of its patent monopoly by restricting the use of it to materials necessary in its operation, but which are no part of the patented invention . . . .").

195. *See* Bohannan, *supra* note 21 (manuscript at 10 n.43, 18–20).

196. *See supra* notes 101–02 and accompanying text.

197. *See generally* AREEDA, ELHAUGE & HOVENKAMP, *supra* note 5, ch. 17.

198. *See* AREEDA & HOVENKAMP, *supra* note 117, ¶ 721.

199. Ill. Tool Works Inc. v. Indep. Ink, Inc., 547 U.S. 28 (2006) (equating misuse and antitrust standards for tying arrangements).

crimination that can be facilitated by post-sale restraints typically arises from field-of-use restrictions. For example, a "noncommercial use only" restriction is likely to be a way that a patentee can charge a higher price for commercial than for noncommercial users of its product. While the patentee might make the initial sale of the noncommercial version to a noncommercial user, the restriction would be needed to restrain further transactions to commercial purchasers—that is, to prevent arbitrage.[200] By the same token, selectively used "single use" restrictions may discriminate between those licensed to make unlimited uses and those subject to the restrictions.[201] A restriction that results in different prices for different categories of users, such as commercial and residential, does in fact transfer sales from high value to lower value purchasers, and thus reduces welfare unless output increases.[202]

Given that most price discrimination ties are lawful today, the "first sale" question is whether they should be enforced by infringement suits rather than breach of contract suits. That question can be important in situations where contributory infringers are easy to detect but primary infringers are not. For example, Lexmark may wish to tie printers and ink cartridges. However, if it is unable to use a technological lock to exclude non-Lexmark cartridges, the tying restriction could be very difficult to enforce against Lexmark's customers. It would be very costly to monitor customer aftermarket purchasing behavior. By contrast, widespread manufacturing of cartridges designed for Lexmark printers might be easy to detect. These "pirate" manufacturers would be guilty of contributory infringement if the tie was enforceable by an infringement action, but they are not in privity of contract with Lexmark and so a purely contractual tie will not bind them. If notice is essential, Lexmark could take care of that problem by informing these cartridge manufacturers of the restriction.

Perhaps there is no good policy argument for giving the holder of an IP right a greater power to engage in price discrimination

200. *See, e.g.*, ProCD, Inc. v. Zeidenberg, 86 F.3d 1447, 1450 (7th Cir. 1996) (discussing arbitrage issues with licenses that attempt to price discriminate).

201. *See, e.g.*, Static Control Components, Inc. v. Lexmark Int'l., Inc., 487 F. Supp. 2d 830, 836 (E.D. Ky. 2007) (printer manufacturer sold patented cartridges at a lower price subject to condition that they not be refilled); *cf.* Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700, 706–08 (Fed. Cir. 1992) (illustrating that single-use restrictions might not involve higher prices for the sale of the same article without the restriction).

202. *See supra* notes 179–80 and accompanying text.

than the owner of any tangible asset.[203] But state policy respecting post-sale restraints on personal property is mixed, with a trend toward enforcing them.[204] In any event, there is no obvious reason why federal competition or patent policy should prevent post-sale restraints imposed on those with proper notice, simply because they might facilitate price discrimination but with no query into social or consumer harm. If price discrimination can be shown to injure competition or work as a disincentive to innovation it should be condemned as a matter of competition policy. The per se rule contained in the first sale doctrine thus seems seriously overdeterrent to the extent that it condemns the tying condition with no query whatsoever into competitive effects or propensity for harm.

6. Restraints on Innovation

A restraint on innovation can arise when the purchaser of a good is prevented from developing a competing good.[205] For example, in *Lasercomb* the Fourth Circuit found misuse in a software licensor's condition prohibiting the licensee from developing any product that competed with the licensed software.[206] While *Lasercomb* involved a license restriction on a copyright, the same principle could apply to the sale of a patented product subject to the condition that the purchaser does not develop a competing product.[207] The cost of a lost opportunity to innovate can be sub-

203. *See generally* Mark R. Patterson, *Contractual Expansion of the Scope of Patent Infringement Through Field-of-Use Licensing*, 49 WM. & MARY L. REV. 157, 221–24 (2007) (discussing issues with price discrimination of patented products); *see also* Wendy J. Gordon, *Intellectual Property as Price Discrimination: Implications for Contract*, 73 CHI.-KENT L. REV. 1367, 1386–90 (1998) (questioning justifications for price discrimination); Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813, 1874–78 (1984) (reviewing problems created by price discrimination). *But see* Makan Delrahim, *The Long and Winding Road: Convergence in the Application of Antitrust to Intellectual Property*, 13 GEO. MASON L. REV. 259, 264 (2005) ("[A]llowing the firm that developed the software to price discriminate may increase social welfare by promoting the efficient commercialization of the asset.").

204. *See generally* Glen O. Robinson, *Personal Property Servitudes*, 71 U. CHI. L. REV. 1449 (2004).

205. *See* Bohannan, *supra* note 21 (manuscript at 35).

206. Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970, 979 (4th Cir. 1990).

207. Princo Corp. v. Int'l Trade Comm'n, 563 F.3d 1301, 1313–14 (Fed. Cir. 2009) (finding possible misuse in package licensing arrangement that may have prevented licensee from developing a competing product), *rev'd en banc*, 616 F.3d 1318 (Fed. Cir. 2010); McCullough v. Kammerer Corp., 166 F.2d 759, 764 (9th Cir. 1948) (finding patent misuse when patentee licensed patent subject to condition that licensee not develop competing technology); Nat'l Lockwasher Co. v. George K. Garrett Co., 137 F.2d 255, 256 (3d Cir. 1943) (finding misuse when patentee conditioned manufacturing license on licensee's promise not to manufacture com-

stantial,[208] and that harm could result whether or not the patentee had significant market power in its patented good.[209] Concern about post-sale restraints on purchasers' innovations in competition with the patented device could be a perfectly good reason for denying enforcement of particular restrictions, such as exclusive use or noncompetition covenants. However, this concern hardly justifies a draconian rule that prohibits every post-sale restraint without any inquiry into the nature or likely effects of the challenged restriction.

III.
DOES THE FIRST SALE DOCTRINE SERVE A USEFUL PURPOSE?

Those decisions that have enforced a patentee's "conditional" sales inconsistently with the Supreme Court's exhaustion doctrine recognize violators as infringers or contributory infringers.[210] By contrast, licensing agreements themselves are governed by contract law and generally enforced in state court. They do not implicate first sale doctrine, but they can be enforced only by breach of contract actions.[211] Federal Circuit jurisprudence has not always been

peting goods); Apple, Inc. v. Psystar Corp., 673 F. Supp. 2d 931, 939–40 No. C 08-03251 WHA, 2009 WL 303046, at *4 (N.D. Cal. Feb. 6, 2009) (finding possible misuse when Apple prevented use of its computer operating system on a non-Apple computer, thus restraining development of rival's machine designed to use Apple and Microsoft operating systems interchangeably). A later decision upset the misuse finding. *See* Apple, Inc. v. Psystar Corp., 673 F. Supp. 2d 931, 939–40 (N.D. Cal. 2009).

208. *See* Herbert Hovenkamp, *Restraints on Innovation*, 29 CARDOZO L. REV. 247 (2007).

209. *See* Bohannan, *supra* note 21 (manuscript at 17, 45–46).

210. *See, e.g.*, Henry v. A.B. Dick & Co., 224 U.S. 1 (1912), *overruled by* Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502, 518 (1917). In *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 706–08 (Fed. Cir. 1992), the Federal Circuit essentially returned to the *Henry* rule. *See* Patterson, *supra* note 203, at 167–71; Edwin E. Richards, *Drafting Licenses to Guide Whether Potential Disputes Lie in Contract or Infringement*, 7 COMPUTER L. REV. & TECH. J. 45 (2002) (implying continued use of patented product after breach of conditional license may support an infringement claim).

211. The Court observed this distinction already in the late nineteenth century. *See* Keeler v. Standard Folding Bed Co., 157 U.S. 659, 665 (1895):

> Whether a patentee may protect himself and his assignees by special contracts brought home to the purchasers is not a question before us, and upon which we express no opinion. It is, however, obvious that such a question would arise as a question of contract, and not as one under the inherent meaning and effect of the patent laws.

clear on the condition versus contract distinction.[212] That court has spoken of conditional sales that evade the exhaustion requirement as requiring "a restriction having contractual significance . . . ."[213] However, when these "contracts" are to be enforced, the Federal Circuit has permitted enforcement via patent infringement actions rather than breach of contract actions.[214]

Without stating any policy argument for its preservation, the Supreme Court nevertheless soundly reaffirmed the first sale doctrine in its 2008 *Quanta* decision.[215] Further, it did so with the enthusiastic support of the Solicitor General and the Department of Justice's Antitrust Division. In its amicus brief the government had argued very forcefully that "[r]estrictions on downstream use or resale may arise as a matter of state contract law, but not patent law."[216] Ironically, this was the same Antitrust Division that had argued a year earlier that the per se rule against RPM should be overruled,[217] and that has very severely cut back enforcement of the law against vertical restraints. So why such a hard line against post-sale conditions that can be enforced by IP infringement suits, with so much tolerance of contractual arrangements that can accomplish the same thing?

The answer must be that the government is not particularly concerned about the substance of the restraint at issue—whether it be tying or RPM or some form of exclusivity—but with its form.

212. *See* Cohen & Lemley, *supra* note 137, at 34–35, 56 (criticizing the Federal Circuit's ambiguous and incorrect use of contract doctrine).

213. Hewlett-Packard Co. v. Repeat-O-Type Stencil Mfg. Corp., 123 F.3d 1445, 1453 (Fed. Cir. 1997); *see also* Jazz Photo Corp. v. Int'l Trade Comm'n, 264 F.3d 1094, 1108 (Fed. Cir. 2001) (conditional sale requires an "express contractual undertaking by the purchaser").

214. *See, e.g.*, LG Elecs., Inc. v. Asustek Computer, Inc., 453 F.3d 1364 (Fed. Cir. 2006), *rev'd sub. nom* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008); Mallinckrodt, Inc. v. Medipart, Inc., 976 F.2d 700 (Fed. Cir. 1992). Interestingly, both *LG* and *Mallinckrodt* relied on U.C.C. provisions stating the existence of a contract in order to find that the condition existed. *See LG Elecs.*, 453 F.3d at 1370; *Mallinckrodt*, 976 F.2d at 708 n.7.

215. Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008).

216. Brief for the United States as Amicus Curiae Supporting Petitioners at *175, Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008) (No. 06-937), 2007 WL 3353102. Or, as the government articulated the first sale doctrine in opening its argument: "The doctrine bars the use of patent law (but not contract law) to enforce restrictions on a purchaser's use or resale of a patented article that was purchased from the patentee or from someone authorized by the patentee to sell the article." *Id.* at *7.

217. *See* Brief for the United States as Amicus Curiae Supporting Petitioner at 3, Leegin Creative Leather Prods., Inc. v. PSKS Inc., 551 U.S. 877 (2007) (No. 06-480), 2007 WL 173650.

That is, there must be something inherently wrong about using licensing conditions plus the threat of infringement suits, as opposed to simple breach of contract actions. Further, notice must be inadequate to address the issue.

The worst problem of the first sale rule is that it lacks subtlety. To be sure, there is a set of technical rules that determines when a qualifying "sale" of a patented or copyrighted good has occurred. However, once such a sale is found enforcement of the post-sale restraint is denied automatically, with no consideration of the restraint's purpose or effect. This means that market power, competitive effects and implications for innovation are all irrelevant. That naturally invites the question whether the first sale doctrine serves any useful purpose at all. Is there a set of cases where simple contract enforcement is inadequate and where the antitrust and misuse rules will fail to police every behavior that we want to see controlled?

Post-sale conditions enforced by infringement actions seem superior to contract suits when the restraint is socially beneficial and a large and diverse number of downstream people are affected. Consider the servitudes problem in real property again.[218] If Alpha does not want commercial uses on Blackacre, she can impose a servitude on the land, have it properly recorded, and that is the end of the matter. Everyone who wants to buy or build on Blackacre has constructive notice of the restriction. Alternatively, Alpha could contract with the initial purchaser of Blackacre and agree that this purchaser upon pain of damages will impose the restriction on all parties downstream, and potentially we could have an endless series of such contracts. But this solution is much messier and increases transaction costs very significantly by requiring ongoing contracting and re-contracting. In sum, the "infringement" action permits enforcement of the restriction at much lower transaction costs than the endless series of breach of contract actions.

Clearly, however, notice is key. The law of servitudes on real property generally provides that if the servitude is not properly recorded, then the servitude cannot be enforced against a subsequent bona fide purchaser without actual notice. That requirement makes the market for servitudes function very well and has largely eliminated holdup problems—for example, the intending developer who buys land for a subdivision and finds out only after development has begun that there is a non-development servitude in place. Unfortunately, IP rights and IP licenses have nothing approaching

218. *See supra* notes 132–35 and accompanying text.

the rather effective recordation and notice provisions that apply to land titles. So if such limitations are to be enforced this places on the enforcer the obligation to see to it that notice is effective under the circumstances.[219]

As a general matter one can be guilty of patent infringement without having any notice whatsoever.[220] If that rule were applied to post-sale restraints, the result could be a significant problem of hold-up, as innocent subsequent purchasers could be sued for patent infringement for violating conditions they knew nothing about. But as noted previously, those courts that have enforced post-sale restraints have either required that timely notice of the restriction be given to the offender or else they have observed that notice was in fact given.[221] If notice had been the government's only concern in *Quanta*, it could have urged the court to uphold the Federal Circuit's departure from the historical first sale rule, but conditioned it on adequate downstream notice to affected parties.

To be sure, a notice is not the same thing as a contract. First of all, notices are typically unilateral acts and can be incomplete as to content, target, and communication.[222] One who sees "This copy machine may be maintained only by Alpha Corp." printed on a machine does not know if she is looking at a restraint on an unpatented good, which may or may not be enforceable under state law; whether the patent has expired; or, depending on the language, the precise meaning of the terms. Further, the notice may not be apparent to every person who might later be in a position to do maintenance on the machine; it could be removed, or it might not be contained on a particular component that is sent in for servicing. Under *Henry* a complete stranger to any transaction having to do with the machine, but who knew of the notice, would be guilty of patent infringement if he replaced a gasket or perhaps even if he dusted off the glass cover.

The notice problem also gets much trickier when a good changes hands many times, particularly if it is incorporated by the production process into other goods, as in *Quanta*. Just as real property covenants "run with the land," patent conditions, if enforceable, travel with the good from one owner to another. In real property law we deal with this problem with a largely effective set of recording provisions. But patented goods have no equivalent system and so it is much more likely that the good will pass to some-

219. *See* Hovenkamp, *supra* note 134.
220. *See supra* note 115.
221. *See supra* notes 119–21 and accompanying text.
222. *See* 5 DONALD S. CHISUM, CHISUM ON PATENTS § 16.02 (2010).

one who does not have adequate notice.[223] Once again, however, the solution seems to be to make patent infringement in such cases depend on reasonably communicated notice and to place the burden of providing effective and timely notice on the licensing patentee.

Also important is the fact that unlike breach of contract actions, patent infringement actions have historically incorporated a preference for injunctive relief. The right to bring an infringement action for an injunction could yield a holdup problem in situations where the subsequent purchaser lacked adequate notice of the restrictions, but that problem is addressed by an effective notice requirement. In any event, under the Supreme Court's *eBay* decision, injunctions are to be issued for patent infringement only when the plaintiff meets the same criteria as apply to equitable actions generally.[224] It is not obvious today that the right to an injunction to enforce a post-sale restraint via patent law would be any broader than the right to enforce it by a contract suit.

Contract remedies would probably be expectation damages in most situations.[225] Most actions would be filed in state court unless there is diversity jurisdiction in federal court. By contrast, a patent infringement suit could be filed in a single federal court against all infringers, including both the first purchaser made subject to the restriction and its customers, users, service personnel, and the like.[226] Damages can be the reasonable royalty rate together with interest and costs[227] or up to treble damages for willful infringers, which presumably includes downstream customers who took with actual notice of the restriction.[228] Of course, successful antitrust challenges can do the same thing, and in that case treble damages would be mandatory.[229]

223. *See* BESSEN & MEURER, *supra* note 117, at 46–72 (2008).

224. *See* eBay Inc. v. MercExchange, LLC, 547 U.S. 388, 390 (2006); *see also* Andrew Beckerman-Rodau, *The Aftermath of* eBay v. MercExchange*, 126 S. Ct. 1837 (2006): A Review of Subsequent Judicial Decisions*, 89 J. PAT. & TRADEMARK OFF. SOC'Y 631, 657 (2007) (finding that after *eBay*, permanent injunctions tend to be issued when patentee and infringer are direct competitors and tend not to be issued when patentee is a non-practicing entity).

225. *See* U.C.C. § 2-714 (2005); Robert E. Scott & George G. Triantis, *Embedded Options and the Case Against Compensation in Contract Law*, 104 COLUM. L. REV. 1428, 1446 (2004).

226. *See* 28 U.S.C. § 1338(a) (2006).

227. 35 U.S.C. § 284 (2006).

228. *Id.* To prove willful infringement, the patentee must show the infringer was objectively reckless in determining whether they would infringe the patent. *In re* Seagate Tech., LLC, 497 F.3d 1360, 1370 (Fed. Cir. 2007).

229. 15 U.S.C. § 15 (2006).

Another possible difference between post-sale conditions and contract terms is jurisdictional. The Federal Circuit's now defunct jurisprudence permitting post-sale restraints implied that the conditions could be enforced by patent infringement actions, and appeals from these actions go automatically and exclusively to the Federal Circuit.[230] By contrast, breach of contract actions ordinarily go into state court, reaching the federal courts only upon the happenstance of diversity of citizenship or a suitable federal question. Appeals would go to the appropriate regional Circuit.

The government also argued in *Quanta* that restrictions that are found to be within the patent grant may be relatively free from antitrust scrutiny, while licensing agreements are not.[231] But that argument seems quite hollow in a world where antitrust treatment of vertical restrictions is minimal and in any event patent "misuse" is governed by antitrust principles. There is little reason to think that an anticompetitive restraint imposed as a condition would be treated differently from the same restraint imposed by contract. Cases such as *Univis* make clear that in the process of applying the first sale doctrine the Court was also expressing a policy about RPM, which was unlawful per se at the time *Univis* was decided.[232]

So traditional antitrust analysis could be used to address post-sale restraints no matter how they are treated. Indeed, to the extent that the law of patent and copyright "misuse" deviates from antitrust principles, it condemns more rather than less.[233] Further, "misuse" law derives from the IP statutes themselves and clearly applies to notice restrictions that are intended to be enforced by in-

230. 28 U.S.C. § 1295(a)(1) (2006) (giving Federal Circuit exclusive jurisdiction over appeals from cases arising under Patent Act); *see also* Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc., 535 U.S. 826, 829 (2002) ("[T]he Federal Circuit's jurisdiction is fixed with reference to that of the district court, and turns on whether the action arises under federal patent law.").

231. *See* Brief for the United States as Amicus Curiae Supporting Petitioners at 29, Quanta Computer, Inc. v. LG Elecs., Inc., 128 S. Ct. 2109 (2008) (No. 06-937), 2007 WL 3353102 ("The Federal Circuit's approach also has the potential to erode downstream competition by permitting patentees to avoid anti-trust scrutiny of restrictions on the use and resale of products embodying their inventions."). Some examples include *Bement v. Nat'l Harrow Co.*, 186 U.S. 70, 91–95 (1902) (upholding price restriction as within the scope of the patent), and *United States v. General Electric Co.*, 272 U.S. 476, 489 (1936) (upholding price restrictions "reasonably" within the scope of the patent grant).

232. United States v. Univis Lens Co., 316 U.S. 241 (1942); *see supra* notes 149–154 and accompanying text.

233. *See* Bohannan, *supra* note 21 (manuscript at 18).

fringement actions.[234] Today, resale price restrictions such as those in *General Electric* or *Univis* would rarely be unlawful, given that the per se rules against both minimum and maximum RPM have been overturned.[235] Tying and exclusive dealing or related practices could still be actionable. While tying is arguably still covered by a per se rule,[236] exclusive dealing is addressed under the rule of reason and, in any event, both require a traditional showing of market power—i.e., market power cannot be presumed from the existence of the patent itself.[237]

The post-sale restriction that the Federal Circuit enforced in *Quanta* resembles tying or exclusive dealing, but it seems unlikely that this was its intended purpose.[238] The restriction forbade downstream purchasers of parts manufactured by Intel under the patentee's license from using them in combination with any non-Intel components. Ordinarily a restriction limiting the purchaser or licensee to using only the seller's brand would be exclusive dealing, or tying if multiple products were involved.[239] In this case, however, Intel made only a tiny minority of the numerous components that go into a computer. It would be a little like Firestone Tire Co. entering into a contract with General Motors agreeing to supply tires to GM but only on the condition that GM not use any non-Firestone products in its automobiles. It would simply be impossible for GM to comply with the condition. The purpose of the restriction must have been to turn the downstream computer assemblers into infringers, presumably so that the patentee could extract additional royalties from purchasers who had already made specific commit-

234. *See, e.g.*, Morton Salt Co. v. G.S. Suppiger Co., 314 U.S. 488, 492 (1942); Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27 (1931); Motion Picture Patents Co. v. Universal Film Mfg. Co., 243 U.S. 502 (1917). All three decisions involved notice restrictions and patent infringement suits for their violation.

235. Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007) (overturning per se rule against minimum resale price maintenance); State Oil Co. v. Khan, 522 U.S. 3, 18 (1997) (overturning per se rule against maximum resale price maintenance); *see* AREEDA & HOVENKAMP, *supra* note 5, ¶¶ 1620 (minimum RPM), 1635 (maximum RPM).

236. On this point, see 9 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1720 (2d ed. 2005 & Supp. 2005).

237. Ill. Tool Works, Inc. v. Indep. Ink, Inc., 547 U.S. 28 (2006) (upsetting presumption of market power for patented tying products); *see* 2B PHILLIP E. AREEDA, JOHN L. SOLOW & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 518 (3d ed. 2007).

238. *See* LG Elecs., Inc. v. Bizcom Elecs., Inc., 453 F.3d 1364 (Fed. Cir. 2006), *rev'd sub nom.* Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008).

239. *See* HOVENKAMP, *supra* note 5, ¶ 1821.

ments to the patentee's technology. That was the position that the government took in its amicus brief to the Supreme Court.[240]

IV. CONCLUSION: POST-SALE RESTRAINT DOCTRINE

The problem of reaching downstream parties disturbed both sides of the *Quanta* dispute, but seems to favor the Federal Circuit's approach. Those favoring the Federal Circuit's approach speak of the great difficulty of identifying downstream purchasers and negotiating individual licenses with them. Those favoring the contract approach speak of the problem of taking downstream users by surprise by means of ineffectively communicated restrictions and a set of infringement rules that can be enforced without regard to privity of contract and the limitations inherent in contract damage rules.

The Supreme Court and the government's position in *Quanta* seems excessively draconian, yielding a per se rule against a practice that was not clearly shown to be more harmful than its alternatives, at least when infringement actions are conditioned on effective notice communicated in a timely manner. In a world in which both post-sale conditions and license restrictions are available one would expect the parties to negotiate the one that was most profitable to them. It is not obvious that one is more harmful than the other, at least in those circumstances when adequate notice is given to potential downstream infringers.

In the sixty-year interval between *Univis* and *Quanta*, the Supreme Court's most recent two first sale cases, the Court (1) adopted and later rejected a per se rule for vertical nonprice restraints;[241] (2) abandoned the per se rule against maximum RPM in 1997[242] and minimum RPM in 2007;[243] (3) greatly loosened the law

240. *See* Brief for the United States as Amicus Curiae Supporting Petitioners at 27, Quanta Computer, Inc. v. LG Elecs., Inc., 553 U.S. 617 (2008) (No. 06-937), 2007 WL 3353102:

> This case provides an illustration. Absent patent exhaustion, the lawful purchase of an article useful only for practicing the patent provides no value to the purchaser until completion of further negotiations and a further payment for the right to use or to resell. Moreover, the need for further negotiations and payments may depend on a court's after-the-fact determination whether the seller adequately expressed a limitation on the rights conveyed.

241. *See* United States v. Arnold, Schwinn & Co., 388 U.S. 365 (1967) (condemning vertical nonprice restraints under per se rule), *overruled by* Continental T.V. v. GTE Sylvania, Inc., 433 U.S. 36 (1977); *see also supra* notes 74–77 and accompanying text.

242. *See* State Oil Co. v. Khan, 522 U.S. 3, 18 (1997).

against tying arrangements;[244] and (4) developed more lenient standards for exclusive dealing. The *Illinois Tool Works* decision upsetting the market power presumption for patented tying products is particularly instructive, because the court made it clear that both antitrust and misuse doctrine had evolved toward considerably greater toleration of post-sale tying restrictions on patented goods.[245]

The reversion in *Quanta* requires an explanation. A coherent legal doctrine of post-sale IP restraints must first identify the set of goals it is designed to serve. In this case there are two: restraints on competition and restraints on innovation, together with a more residual concern to protect access to the public domain. As a policy matter, whether the restraint is carried out by a condition and enforced by an infringement action, or by a contract term enforceable through state law, is a detail that depends greatly on the communication of effective notice, but otherwise has little effect on either competition or innovation policy. If the Supreme Court had viewed the problem this way it could have produced a more unified and useful set of legal rules governing post-sale restraints that threaten either competition or innovation.

243. *See* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007).

244. *See* Ill. Tool Works, Inc. v. Indep. Ink, Inc., 547 U.S. 28 (2006); Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984); U.S. Steel Corp. v. Fortner Enters., Inc., 429 U.S. 610 (1977).

245. *Ill. Tool Works*, 547 U.S. at 33–37.