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**Can the proliferation of overlapping patent rights ironically promote
efficient use of patented technologies?**

Patent Holdouts in the Standard- Setting Process

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by Doug Lichtman*

Technical standards are often subject to massively overlapping patent protections. The protocol that governs how information is stored on DVD-R media, for example, is known to implicate at least 177 different patents.¹ RFID technology—those electronic tags that Wal-Mart² and the Department of Defense³ increasingly require their suppliers to use—is at this point rumored to implicate over 4,000.⁴ Firms interested in implementing heavily patented protocols like these typically approach the issue by joining together to form a standard-setting organization, a patent pool, or some other licensing intermediary.⁵ That intermediary endeavors to identify the relevant patents and,

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¹ Information about these patents and the patent pool that administers them can be found online at <http://www.dvd6cla.com> (last visited May 1, 2006).

² See News Release, New CIO Confirms Wal-Mart Commitment to RFID (April 13, 2006) (confirming Wal-Mart's commitment to RFID tracking of supplies and inventory).

³ The Department of Defense maintains current information about its RFID requirements and protocols online at <http://www.acq.osd.mil/log/rfid/index.htm> (last visited May 1, 2006).

⁴ See Mark Roberti, Navigating the RFID Patent Landscape, *RFID Journal* (Oct. 13, 2004), available online at <http://www.rfidjournal.com/article/view/1187/1/1> (last visited May 1, 2006).

⁵ See Carl Shapiro, Navigating the Patent Ticket: Cross Licenses, Patent Pools and Standard Setting, in *National Bureau of Economic Research (NBER), Innovation Policy and the Economy* vol. 1, 119-150 (A. Jaffe, J. Lerner and S. Stern, eds., 2001); Robert P. Merges, Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations, 84 *Calif. L. Rev.* 1293, 1294 (1996).

subject to the constraints of antitrust law,⁶ organize the various patentees such that interested firms can in the end license necessary patents collectively.

Problem solved? Not quite. At least a few patent holders are inevitably left out of every collective solution, and over time those patent holders can wreak havoc on the entire licensing regime. After all, a patent holder whose patent is identified prior to the adoption of a given standard can at most demand a royalty that reflects the marginal value of its patented technology.⁷ There is no other money on the table. If a patentee demands more, firms interested in the standard will opt for some other approach. A patent holder whose patent is revealed only after the standard has gained widespread acceptance, by contrast, is in a significantly stronger negotiating position. This patentee will still be able to demand a royalty that reflects the marginal value of its patented technology, but it will also be able to extract a sizeable payment that is completely unrelated to that value.

For instance, if an implementing firm would have to disrupt its offerings in order to change away from an infringing standard, a newly discovered patentee will be able to demand a share of the savings associated with not having to in that way interrupt sales. Similarly, if an infringing firm would have to retool its manufacturing facility in order to exchange the infringing technology for a non-infringing alternative, again a newly discovered patentee will be able to cash in by allowing the infringer to avoid those costs. In short, a patentee that comes into view only after a firm has invested in a given standard can hold hostage the firm's standard-specific investments. The result is often a royalty payment that far exceeds the inherent value of the underlying patented technology.

What to do? What firms do right now is exactly backwards. If a given technology is going to be vulnerable to ex post patent challenge, an infringer is better off if there are dozens of credible patent claimants rather than a mere few. If there are only a few claimants, each will have a strong incentive to sue, as each will expect to extract significant payments thanks to the holdout dynamic. A large number of claimants, by contrast, mutes this incentive. Each claimant knows that it is only one among many patent litigants, and each therefore knows

⁶ Antitrust authorities carefully monitor collective rights organizations, understandably nervous that competitors might use these organizations to coordinate behavior in anticompetitive ways. The Department of Justice in fact issues "business review letters" in which it audits and reacts to proposed licensing structures. See, for example, Press Release, Justice Department Clears Way for Formation of Wireless Telecommunications Patent Platforms (Nov. 12, 2002) (available online at <http://www.usdoj.gov/atr/public/press_releases/2002/200454.htm> (last visited May 1, 2006)).

⁷ This is a bit of a simplification, in that even ex ante negotiations are corrupted by the probabilistic nature of patent protection and also the problem of Cournot complementarity. See Mark Lemley & Carl Shapiro, Patent Holdup and Royalty Stacking, Texas L. Rev. (forthcoming 2007).

that the maximum value it will be able to extract will include only a fractional share of the total holdout value. The more overlapping patents, the smaller that share, and thus the lower the incentive both to holdout and to sue. At the extreme, a patented technology subject to thousands of overlapping patents is for all intents and purposes in the public domain. A patentee that holds just one of several thousand patents necessary to implement a given standard does not hold a property right of significant intrinsic value.⁸ And the holdout value that might otherwise make litigation attractive on these assumptions divides to zero.

Obviously, there is much more to say. I unpack this idea in four short steps. In part I, I explain why there will always be patents left outside any licensing structure. In part II, I show that these patents can in fact be asserted against firms that did not and could not know of their existence. In part III, I return to the dynamic outlined above and offer a practical suggestion about how to implement a licensing strategy that harnesses the ironic benefits of massively overlapping patent exposure. Finally, in part IV, I briefly conclude, linking my discussion here to the more general literature on the tragedy of the anti-commons.

I. Undiscovered Patents are Inevitable

Firms interested in implementing a given standard often start the process by putting out a call for relevant patent rights. In November of 2004, for instance, such a process began with respect to the standard that governs Wi-Fi communications: a coordinating body publicly announced that it was looking to identify any patent that might be essential to implementation of the Wi-Fi standard.⁹ Similar calls have in recent years gone out with respect to the 3G wireless standard, MPEG data compression protocols, and dozens of other technical standards.

Some patent holders step forward in response to requests like these. This might be the best way for patent holders to influence the development of the standard and thus to steer it toward an approach that maximizes the value of their complementary goods and services. Or this might be the best way for patent holders to encourage widespread adoption of the standard, paving the way for substantial patent royalties in the future.¹⁰

⁸ Indeed, this might explain why so many standard-setting organizations are able to convince patent holders to license their rights royalty-free. There is just not enough value inherent in any single patent to warrant the transaction costs of collecting royalties—especially given that, in a royalty regime, each patent holder would have to pay royalties to other patent holders under similar terms.

⁹ Information on this particular call for patents is available at <<http://www.wimax-industry.com/pr/1e.htm>> (last visited May 1, 2006).

¹⁰ Some standard-setting organizations discourage self-interested advocacy of the sort imagined in the text. The ATM Forum, for example, is willing to promulgate a standard known

Many patent holders will of course not respond. However, those patent holders can still sometimes be pressured to step forward. Consider, for example, a firm that not only holds a relevant patent but also itself wants to implement products and services compliant with the standard. The various patent holders who have stepped forward might bring this patent holder into the fold by announcing that they will license their patents at reasonable rates to all interested parties, but they will require in return that any licensee likewise license its relevant patents under similar terms.¹¹ An undiscovered patent holder who wants to implement the standard might find that tradeoff appealing.

All that said, two categories of patent holders are still beyond reach. The first includes any patent holder who is at the time unaware of the scope of its patent portfolio. This might seem to be a small category, and maybe it is,¹² but there is at least some risk that during the standard-setting process a patent holder will not realize that it holds relevant rights, but that later either that firm or a patent clearinghouse will identify the relevant patent and assert it.¹³ The second category is made up of patent holders who for strategic reasons intentionally lay low. These firms understand the holdout dynamic outlined above and they keep quiet in the hope of ultimately holding out and cashing in accordingly.¹⁴

One might suspect that firms interested in implementing a patented standard can deal with these two categories of patent holdouts by searching the Patent Office to identify the relevant patent rights. After all, in theory, the quid pro quo of the patent system is that inventors disclose their inventions to the public, and in exchange the government grants those inventors exclusive rights to make, use, or sell the disclosed technologies. That would seem to suggest that there is an accessible public record of patented technologies, and that firms nervous about strategic or accidental absentees could simply flip through that record and identify potential obstacles to their work. Sadly, in practice, identifying patents in this manner is all but impossible.

to fall within a member's patent portfolio, but only if three-fourths of the members agree. Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 Calif. L. Rev. 1889, 1906 (discussing this and other intellectual property policies adopted by major SSOs).

¹¹ This sort of reciprocal license is quite common. See, for example, Microsoft's Royalty-Free Sender ID Patent Licensing Agreement at § 2.3 (2006) (available online at <http://download.microsoft.com/download/b/d/3/bd3b5463-c461-409c-b29f512218d3f3e6/SenderID_LicenseAgreement.pdf> (last visited May 1, 2006)).

¹² But see Kevin G. Rivette & David Kline, *Rembrandts in the Attic: Unlocking the Hidden Value of Patents* (1999) (arguing that firms with large patent portfolios regularly lose track of valuable patents in their possession).

¹³ Firms that purchase patents to use in this manner have understandably earned themselves a bad name. But that is a topic for another day.

¹⁴ The memory chip manufacturer Rambus is the notorious example here. See Peter Spiegel, *Chipmaker Charged by Antitrust Agency*, *The Financial Times* (June 20, 2002 at A-12).

Trouble begins with the fact that every patent is written in its own vocabulary.¹⁵ Two patents might thus describe the exact same protocol, but the descriptions would look nothing alike. To make matters worse, patent language is subject to hopelessly nuanced rules of interpretation. Indeed, there are actually cases where the Federal Circuit has struggled to decide “plausible disagreements” as to the meanings of seemingly innocuous words like “to,” “on,” “about,” and “through.”¹⁶ In a world with that much hairsplitting—let alone the large number of patents in force¹⁷—identifying and interpreting every relevant patent is a tall order. This is not to imply that no patents can be identified by means of a careful search. Often even an amateur eye can spot at least some relevant patents in short order.¹⁸ In practice, however, a firm cannot hope to reliably identify all previously undiscovered patents relevant to a given technical standard, and identifying even a subset of such patents is likely an expensive and time-consuming task.

But even that understates the problem, in that the very act of searching increases the searching firm’s legal exposure. Why? Normally, a firm accused of patent infringement can avoid a charge of willful infringement by showing that the firm did not know that the relevant patent existed.¹⁹ The intuition is that it is impossible for a firm to intentionally infringe a patent of which it was not aware. A firm that engages in search, however, risks losing this easy out. The firm might have thumbed through the patent at issue but failed to realize its import. If so, the

¹⁵ See *Renishaw PLC v. Marposs Societal Per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998) (“where a patent applicant has elected to be his own lexicographer by providing an explicit definition in the specification for a claim term, . . . the definition selected by the patent applicant controls”).

¹⁶ Dan L. Burk & Mark A. Lemley, *Quantum Patent Mechanics*, 9 *Lewis & Clark L. Rev.* 29, 53 (2005) (collecting cases). For some other evidence in similar spirit, see Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 *Harv. J.L. & Tech.* 1 (2001) (documenting the frequency with which the Federal Circuit reverses lower court claim constructions); R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 *U. Pa. L. Rev.* 1105 (2004) (showing how judges at the Federal Circuit themselves often squabble over the meaning of words and the methodologies by which to determine meaning in the first place). A central debate in patent law today asks whether it would be possible to simplify these rules without undermining other public policy goals. On this, see Doug Lichtman, *Substitutes for the Doctrine of Equivalents*, 93 *Geo. L. J.* 2013 (2005).

¹⁷ It is estimated that well over 1 million patents are currently in force in the United States, and that number does not count patents that might be in force abroad. See Donald Chisum, *Reforming Patent Law Reform*, 4 *J. Marshall Rev. Intell. Prop. L.* 336, 343 (2005).

¹⁸ With respect to the RFID standard, for example, see *RFID Tag Wide Bandwidth Logarithmic Spiral Antenna Method and System*, United States Pat. No. 6,963,317 (Nov. 8, 2005); *RFID Label Technique*, United States Pat. No. 6,951,596 (Oct. 4, 2005); *RFID Device and Method of Forming*, United States Pat. No. 6,940,408 (Sept. 6, 2005).

¹⁹ For a fuller introduction to the rules regarding willful infringement, see Mark A. Lemley & Rakesh K. Tangri, *Ending Patent Law’s Willfulness Game*, 18 *Berkeley Tech L. J.* 1085 (2003).

searching firm might find itself on the hook for treble damages—all because it searched, but interpreted its findings imperfectly. This is why firms in other settings routinely forbid their employees from looking at newly issued patents. In patent law, search exposes searchers to too much risk.²⁰

My remarks thus far focus on issued patents. Patents that have not yet been issued pose even more daunting problems. Patent applications are not made public until at least eighteen months after filing,²¹ and a strategic applicant can toll that clock by (for example) certifying to the Patent Office that the relevant application has not been filed in any country that requires publication.²² Moreover, patent applications can be filed up to one year after the underlying technology is publicly known.²³ Thus, a technology can be patent-free when discussed as a candidate for a given standard, but one year later that technology might be included in a patent application that would not be made public for at least eighteen months after that. More troubling still, the Patent Office as it stands today is not particularly reliable when it comes to evaluating proposed inventions and weeding out those that do not meet patent law's stringent eligibility thresholds.²⁴ This means that a strategic firm might be able to wait until long after a standard has been adopted and then, despite the formal legal rules, patent (say) an obvious and necessary improvement. Against that sort of behavior even careful attempts at search are no answer.

II. Undiscovered Patents Nonetheless Bind

One might suspect that patent law would protect firms from undiscovered patents, especially in cases where the infringer in question endeavored in good faith to identify relevant patent rights. From afar, three patent doctrines look promising in this regard.

²⁰ Ignorance is also an absolute defense to a charge of contributory infringement. Thus search actually opens the door to two types of legal liability.

²¹ See 35 U.S.C. § 122(b)(1)(A) (“each application for a patent shall be published, in accordance with procedures determined by the Director, promptly after the expiration of a period of 18 months from the earliest filing date for which a benefit is sought under this title”).

²² See 35 U.S.C. § 122(b)(2)(B)(i) (applications are not published if the relevant applicant so requests and certifies that “the invention disclosed in the application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication of applications 18 months after filing”).

²³ See 35 U.S.C. § 102(b) (an invention is eligible for protection unless “the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States”).

²⁴ Among the thresholds that the Patent Office should enforce are the requirements that a purported invention be literally new and that it be a non-obvious contribution as compared to the prior art. See 35 U.S.C. §§ 101 & 103. Unfortunately, there is considerable evidence that the Patent Office is not currently able to enforce these thresholds reliably.

The first is the equitable doctrine of laches, under which a court can in its discretion deny recovery for any infringement committed prior to the filing of a patent case.²⁵ Laches is available as an affirmative defense only in instances where (1) the patentee can be shown to have “unreasonably and inexcusably” delayed in filing suit²⁶ and (2) that delay materially prejudiced the infringer.²⁷ But these conditions should be met in the most egregious cases—cases where a patent holder knowingly sits on its rights and as a result other firms make significant and irreversible investments in an infringing standard.²⁸ That said, successful assertion of a defense based on laches accomplishes only so much. The relevant infringer is off the hook for damages that were incurred before the litigation was begun, but the infringer is subject to both damages and injunctive relief from that point forward. A finding of laches is therefore typically a relatively hollow victory.²⁹

²⁵ See, e.g., *Gasser Chair Co., Inc. v. Infanti Chair Manufacturing Corp.*, 60 F.3d 770, 773 (Fed. Cir. 1995) (“To successfully invoke laches, a defendant must prove by a preponderance of the evidence (1) that the plaintiff delayed filing suit an unreasonable and inexcusable length of time after the plaintiff knew or reasonably should have known of its claim against the defendant; and (2) the delay resulted in material prejudice or injury to the defendant.”; “The application of the laches defense is discretionary, and as an equitable matter, the district court is to look to all the facts and circumstances of the case and weigh the equities of the parties.”).

²⁶ *A. C. Aukerman Co. v. R. L. Chaides Construction Co.*, 960 F.2d 1020, 1032 (Fed. Cir. 1992) (using the terms “unreasonable” and “inexcusable”). There is no precise line between excusable and inexcusable delay. “The length of time which may be deemed unreasonable has no fixed boundaries but rather depends on the circumstances.” *Id.* However, a delay of more than six years gives rise to a rebuttable presumption of laches. *Id.* at 1034.

²⁷ The prejudice can be evidentiary or economic. That is, laches might be premised on the fact that critical information is no longer available to support what might otherwise have been a successful defense, or laches might be premised on the fact that the infringer made significant irreversible investments based on the reasonable assumption that litigation was unlikely. See *Gasser Chair Co., Inc. v. Infanti Chair Manuf. Corp.*, 60 F.3d 770, 776 (Fed. Cir. 1995); *Hemstreet v. Computer Entry Systems Corp.*, 972 F.2d 1290, 1293 (Fed. Cir. 1992); *Adelberg Lab., Inc. v. Miles, Inc.*, 921 F.2d 1267, 1272 (Fed. Cir. 1990); *Naxon Telesign Corp. v. Bunker Ramo Corp.*, 686 F.2d 1258, 1265-66 (7th Cir. 1982); *Studiengesellschaft Kohle mbH v. Eastman Kodak Co.*, 616 F.2d 1315, 1325-28 (5th Cir. 1980); *Watkins v. Northwestern Ohio Tractor Pullers Asso.*, 630 F.2d 1155, 1159 (6th Cir. 1980).

²⁸ See *Dymo Indus., Inc. v. Monarch Marking Sys., Inc.*, 474 F. Supp. 412 (N.D. Tex. 1979) (“by increasing its sales and devoting substantial resources to the development and manufacture of hand labelers, Monarch has materially changed its position” for the purposes of laches analysis).

²⁹ Laches is valuable in cases where the accused infringer can, at low cost, abandon the infringing practice and substitute a non-infringing alternative. In such a case, the infringer is primarily worried about damages that have already accrued, and laches can be used to excuse that payment obligation.

The second relevant doctrine is the doctrine of equitable estoppel, which, where it applies, excuses infringement on a forward-looking basis.³⁰ To qualify for estoppel, an accused infringer must show that (1) the patent owner “through conduct, positive statement, or misleading silence represent[ed] to the infringer that his business [would] be unmolested by claims of infringement”³¹ and (2) in reliance on that representation,³² the infringer behaved in such a way that (3) it would be “harmed materially if the [patent holder] is later permitted to assert any claim inconsistent with his earlier conduct.”³³ Estoppel at first blush might seem to map well to the types of patent controversies likely to arise in the standard-setting context. In practice, however, estoppel is a difficult defense to champion. The second prong is not the issue; as it was with laches, infringers here would certainly be able to show significant investments specifically made to conform with the standard. To satisfy the first prong, however, an accused infringer must show something more than a long delay between the time a patent holder knew of the alleged infringement and the time of litigation.³⁴ There needs to be (say) a threat to sue followed by a long period of inaction³⁵ or an interaction between the parties sufficient to leave the accused infringer under the reasonable impression

³⁰ See, e.g., *Jamesbury Corp. v. Litton Industrial Products, Inc.*, 839 F.2d 1544, 1553 (Fed. Cir. 1988) (“Estoppel prevents the patent owner from obtaining prospective relief, either an injunction or damages for infringement occurring after the filing of suit.”).

³¹ The words here belong to Chisum, Patent Law § 19.05, but similar phrasings have been adopted by the courts. See, e.g., *Aukerman*, 960 F.2d at 1041-42 (articulating this as a requirement that the relevant patentee communicate “in a misleading way, either by words, conduct or silence”); *Adelberg Laboratories, Inc. v. Miles, Inc.*, 921 F.2d 1267, 1273 (Fed. Cir. 1990) (“The nature of the affirmative conduct that estoppel requires includes misrepresentations, affirmative acts of misconduct, or intentionally misleading silence by the patentee.”); *Meyers v. Asics Corp.*, 974 F.2d 1304, 1308 (Fed. Cir. 1992) (same).

³² *Aukerman*, 960 F.2d at 1020 (articulating the three factual predicates, but noting that the second and third are sometimes combined into a single “detrimental reliance” factor); *Meyers*, 974 F.2d at 1308 (same).

³³ *Aukerman*, 960 F.2d at 1020 (quotations and citations omitted).

³⁴ This is made clear by the formulation adopted in *Adelberg Laboratories, Inc. v. Miles, Inc.*, 921 F.2d 1267, 1273 (Fed. Cir. 1990), where “unreasonable and inexcusable delay in filing suit” is listed as one requirement and “affirmative conduct by the patentee to induce the belief that it had abandoned its claim” is listed as an additional requirement. The implication, confirmed throughout the case law, is that these are not redundant criteria.

³⁵ See, e.g., *Advanced Hydraulics, Inc.*, 525 F.2d at 480 (“The critical fact in identifying an estoppel situation . . . is that: The infringement notice threatening prompt and vigorous enforcement of the patent . . . was then followed by a period of unreasonable and unexcused delay.”); *Continental Coatings Corp. v. Metco, Inc.*, 464 F.2d 1375, 1380 (7th Cir. 1972) (estoppel is appropriate in instances where a threat to sue was “withdrawn or followed by such a long period of inactivity as to justify an inference of abandonment”). See also *Meyers v. Asics Corp.*, 974 F.2d 1304, 1309 (Fed. Cir. 1992); *Jensen v. Western Irrigation & Mfg, Inc.*, 650 F.2d 165, 169 (9th Cir. 1980); *Dymo Industries, Inc. v. Monarch Marketing Systems, Inc.*, 474 F. Supp. 412, 417 (D. Tex. 1979).

that litigation is not in the offing.³⁶ It seems unlikely that a patent holder hoping to cash in on an infringing standard would make that sort of error of inconsistency.³⁷

The last patent doctrine that might dampen the harm caused by undiscovered patents is a doctrine that derives from section 283 of the Patent Act. Section 283 authorizes courts in patent disputes to “grant injunctions in accordance with the principles of equity” and to do so “on such terms as the court deems reasonable.”³⁸ As the Supreme Court reiterated just a few days ago in *eBay v. MercExchange*,³⁹ the implication here is that courts can consider public policy when deciding whether to authorize injunctive relief in response to proven on-going infringement. This might seem—indeed, it might end up actually being⁴⁰—a natural safety valve for disputes involving patent holdouts, where the relevant public policy considerations are (1) the ease with which the patent holder could have announced its patent before firms invested in the standard, and (2) the extent to which injunctive relief might empower the holdout to extract a royalty that exceeds the inherent value of the patented technology.⁴¹ For now, however, courts have not shown much willingness to consider arguments of this sort.⁴² The typical explanation is that any public policy served by denying

³⁶ See, e.g., *Scholle Corp. v. Blackhawk Molding Co.*, 133 F.3d 1469 (Fed. Cir. 1998) (patentee threatened to sue, interacted with the accused infringer regarding possible modifications to the technology, and then sat silently for over three years). Cf. *Wang Laboratories, Inc. v. Mitsubishi Electronics America, Inc.*, 103 F.3d 1571 (Fed. Cir. 1997) (patentee’s involvement in and benefit from standard-setting process used to justify an estoppel-like finding that patentee had granted an implied license).

³⁷ Not surprisingly, courts commonly treat the laches defense favorably but on the same facts question whether equitable estoppel has been established. See, e.g., *Hottel Corp. v. Seaman Corp.*, 833 F.2d 1570 (Fed. Cir. 1987) (supporting district court finding with respect to laches but overruling finding with respect to estoppel).

³⁸ 35 U.S.C. § 283.

³⁹ *eBay Inc. v. MercExchange, LLC*, 547 U.S., Slip Op. No. 05-130 (May 15, 2006).

⁴⁰ I am optimistic that, in light of the *eBay* decision, lower courts will work to identify and then clearly define specific settings where injunctive relief is inappropriate, perhaps even embracing as relevant the two factors I mention in the text. That said, the path from here to there is still considerably uncertain, as even the “unanimous” Court seemed divided on the details of when injunctions are and are not appropriate.

⁴¹ Interestingly, when it comes to calculating a reasonable royalty, courts explicitly measure value in comparison to non-infringing alternatives that could have been adopted at the time of the original infringement. See, e.g., *Joy Technologies Inc. v. Flakt Inc.*, 954 F. Supp. 796, 803 (D. Del. 1996); *Panduit Corp. v. Stahl Bros. Fibre Works*, 575 F.2d 1152, 1159-62 (6th Cir. 1978). It would seem only natural to import this same consideration into a court’s analysis of injunctive relief; yet, as I point out in the text, courts to date refuse to do so.

⁴² The Federal Circuit itself was reluctant to consider arguments like these, seemingly favoring an almost automatic injunction barring extraordinary circumstances. See *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323 (Fed. Cir. 2005).

injunctive relief is outweighed by the various public policies supporting a strong and reliably enforced patent system.⁴³

III. Safety in Numbers

With that background in mind, it is now easy to explain the ironic benefits of massively overlapping patent exposure. As I outlined in the introduction, patent holders whose patents are known from the start can demand at most a royalty that reflects the marginal value of their patented technologies. Patentees whose patents are revealed after the standard has gained widespread acceptance, by contrast, can demand not only a royalty that reflects that intrinsic value but also a royalty that reflects the value of the infringing firm's standard-specific investments. Importantly, however, the greater the number of patent holders in the latter position, the less each can expect to earn from this tactic.

This is the insight that is overlooked in the current literature and also missed in modern licensing practice. If fifteen patent holders can credibly threaten to shut an infringer for six months while that firm redesigns its products and services, the value associated with avoiding six months of disruption must be split fifteen ways. If three hundred patent holders can credibly make that threat, the pro rata share drops by a factor of twenty. More patents means less money per patent holder. Less money, in turn, means less of an incentive for a firm to strategically delay in the hopes of being a patent holdout, and less of an incentive for an accidental patent holdout to actually bring suit.

This dynamic can be harnessed to benefit implementing firms. One approach would have implementing firms stop licensing patent rights entirely. This approach might be too precarious to actually work,⁴⁴ but in theory one can

⁴³ See, e.g., *A.W. Industries Inc. v. Electronic Connector Service Inc.*, 46 USPQ2d 1218, 1224 (S.D. Fla. 1997) ("The public interest is clearly served by protecting rights secured by valid patents."); *Colonial Data Technologies Corp. v. Cybiotronics Ltd.*, 41 USPQ2d 1763, 1769-70 (D. Conn. 1996) ("while we recognize a public interest favoring continued competition, . . . we believe here this interest is outweighed by the public's interest in enforcing this presumptively valid patent"); *LifeScan Inc. v. Polymer Technology International Corp.*, 35 USPQ2d 1225, 1241 (W.D. Wash. 1995) ("although there are advantages to the public in being able to purchase low-cost medical products, the public interest favors the granting of an injunction"; "Congress has made the legislative determination that it is not in the public interest to permit the infringement of . . . temporary monopolies as it undermines inventor incentive.").

⁴⁴ One wrinkle, for instance, is whether patent holdouts might show up at different times, with one (say) threatening to disrupt the implementing firm right now and then another showing up to threaten disruption in six months. How this sort of dynamic would play out depends on, among other things, the life cycle of the relevant product, the length and cost of any disruption, the number of patent holdouts, the relative scope and strength of each patent, the costs associated with litigation, the amount of time between the filing of a patent suit and the issuance of any injunctive relief, and the ability of patent holdouts to coordinate their efforts. I

imagine a firm throwing caution to the wind, ignoring all patents relevant to a given standard, and in the end relying on the threat of overlapping patent litigation to discourage strategic play. Patent holders might over time step forward and sue. But those cases would settle for a royalty that approximately reflects the value of the relevant patents. No patent holder could credibly demand more because no infringer could possibly pay more. Every infringer would know that hundreds of other patent claimants are waiting in the wings to extract their share of the holdout value.⁴⁵

A safer approach would be to introduce a new licensing provision modeled after the “most favored nations” clauses that are today already used in the standard-setting context.⁴⁶ Under this approach, licensees would commit to pay known patent holders a royalty that roughly reflects the value of their technologies. Licensees would further commit, however, that if any later patentee can be shown to be earning a rate above that reasonable level, existing patentees would automatically be entitled to a similarly overstated fee. The difficulty here would come in defining and policing compliance with the “reasonable” royalty standard. On this, however, I am cautiously optimistic. Many licensing organizations today already require their members to price at “reasonable, non-discriminatory” rates.⁴⁷ To date, those organizations have been relatively successful at first defining and then enforcing that obligation.⁴⁸ Besides, the process need not be perfect. A firm might be able to negotiate a royalty

am separately working to model this interaction, but, as I say in the text, this large number of variables makes the strategy strike me as unacceptably precarious for current purposes.

⁴⁵ For the same reasons, an individual cannot pay blackmail in an instance where the first party to demand payment is only one of a thousand individuals privy to the same embarrassing information.

⁴⁶ MFN provisions are currently used to promise licensees that no other licensee will receive better terms. An example is the MFN provision found in section 6.1 of the DVD Patent License Agreement. The relevant language reads: “[I]n the event that Licensor grants a DVD patent license to another party with royalty rates more favorable” than those specified in the Agreement, “Licensor shall send written notice to Licensee” and “Licensee shall be entitled to an amendment to this Agreement to the extent of providing for royalty rates as favorable as those available to such other party.” The full license is available online at <http://www.dvd6cla.com/CategorizedAgreement_Sample.pdf> (last visited May 1, 2006).

⁴⁷ I refer here to what is known as RAND licensing, which is an abbreviation for licensing on a “reasonable and non-discriminatory” basis. Many standard-setting organizations require members to license in this manner. Lemley, *supra* note 10, at 1906. Royalty rates vary from licensee to licensee, but they must in general be set at reasonable rates that roughly correspond to the value of the underlying technology.

⁴⁸ Naturally, there are occasional disputes over whether a given licensing agreement satisfies RAND obligations. Nevertheless, major standard-setting organizations like the IEEE (Institute of Electrical and Electronics Engineers) and the ISO (International Organization for Standardization) support the use of this licensing term, as do firms whose businesses rely heavily on successful standard-setting, like Microsoft and IBM.

slightly above the permissible level, but royalties significantly above that threshold would be detected.⁴⁹

IV. Conclusion

Patent scholars have in recent years grown increasingly worried that the patent system might inadvertently trigger a “tragedy of the anti-commons”—a situation where so many different parties own rights relevant to a given technology that it becomes difficult for anyone to acquire all the necessary permissions.⁵⁰ The result is said to be inefficient under-use of the technology. I have focused on this problem as it arises in the context of patented technical standards, but the problem obviously applies much more broadly, with possible implications for everything from biomedical science to computer engineering.⁵¹

My contribution is to suggest a new solution to the anti-commons problem. Yes, where a large number of independent parties hold patents relevant to a specific technology, coordination might prove difficult thanks to factors like transactions costs and strategic play. And yes, as a result, potential licensees

⁴⁹ A third approach would be for a firm to license patents subject to an obligation to sue. That is, a firm would sign contracts with known patent holders under which those patent holders would agree not to sue the firm for implementing the infringing standard. However, there would be one exception: those patent holders would affirmatively commit to sue in the event that any other patent holder sues the licensee. I do not put this approach forward in the text because it turns out to be subject to its own version of the patent holdout problem. Suppose, for example, that 999 of 1000 relevant patent holders sign this contract. There now remains only one outsider who can plausibly threaten to sue. True, if that outsider actually goes through with the threat, he earns no more than a reasonable royalty and in addition must spend money on litigation. But if the outsider goes through with the threat, the infringer also suffers: he must defend 1000 lawsuits and he will ultimately need to share the holdout value with all thousand firms. The outsider can thus hold *this* set of expenses hostage, and thus the problem of patent holdout returns. Note that this same difficulty does not arise in the context of the most favored nations clause, because there an outsider cannot cash in on such a threat. If the outsider receives any cash, the clause is triggered.

⁵⁰ The most prominent article along these lines is Michael A. Heller & Rebecca S. Eisenberg, Can Patents Deter Innovation? The Anticommons in Biomedical Research, 280 Science 641, 641-788 (May 1, 1998). The phrase “tragedy of the anti-commons” was originally coined by Frank Michelman, but Heller developed the concept significantly in his article, Michael A. Heller, The Tragedy of the Anti-Commons: Property in Transition from Marx to Markets, 111 Harv. L. Rev. 621 (1998).

⁵¹ See, among many others, Nari Lee, Patent Eligible Subject Matter Reconfiguration and the Emergence of Proprietary Norms: The Patent Eligibility of Business Methods, 45 IDEA 321 (2005) (considering whether this concern applies to computer software and business method patents); Janice M. Mueller, No “Dilettante Affair”: Rethinking the Experimental Use Exception to Patent Infringement for Biomedical Research Tools, 76 Wash. L. Rev. 1 (2001) (arguing that this concern justifies a broader experimental use exception); Clarissa Long, Property Rights and Why Initial Allocations Matter, 49 Emory L.J. 823 (2000) (discussing the implications of the anti-commons and possible responses like consensual licensing through intermediaries).

might not be able to gather all the permissions they need to use the patented technology legally. But there is a silver lining. The large number of overlapping patents that makes it difficult for firms to license necessary rights at the same time dampens the costs associated with each specific failure to license. Contrary to the conventional teachings of the anti-commons literature, then, some resources will come into efficient use precisely because there are so many patent holders who each can plausibly veto another firm's use.