

Fordham Intellectual Property, Media and Entertainment Law Journal

Volume 27, Number 1

2016

Article 1

Puzzles of the Zero-Rate Royalty

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Eli Greenbaum

Abstract

Patentees increasingly exploit their intellectual property rights through royalty-free licensing arrangements. Even though patentees using such frameworks forfeit their right to trade patents for monetary gain, royalty-free arrangements can be used to pursue other significant commercial and collaborative interests. This Article argues that modern royalty-free structures generate tension between various otherwise well-accepted doctrines of patent remedies law that were designed for more traditional licensing models. As such, current doctrines provide conflicting frameworks for evaluating the royalty-free arrangement, and offer inconsistent approaches for determining the appropriate remedy for their breach. This discord grows out of courts' inadequate attention to non-monetary consideration in licensing transactions, and how such non-monetary obligations have been used to structure the licensing relationship and broader collaborative efforts.

KEYWORDS: Patents, Royalty, Licensing

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INTRODUCTION	2
I. ROYALTY-FREE LICENSES AND COMMITMENTS	7
A. Standards Organizations	9
B. Commitments Outside of Standards	12
C. Free and Open Source Licenses	15
D. Defensive Arrangements	18
E. Motivations	20
II. LICENSING AND INJUNCTIONS	28
A. eBay and its Progeny	29
B. Patent “Trolls”	34
C. FRAND Commitments	37
III. THE REMEDIES PUZZLE	43
A. Against Injunctions	44

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<i>B. For Injunctions</i>	48
IV. NON-MONETARY CONSIDERATION	50
CONCLUSION	62

INTRODUCTION

*eBay Inc. v. MercExchange, L.L.C.*¹ was one of the most influential patent decisions of the last generation.² The Supreme Court in *eBay* held that courts must apply a four-factor “equitable test” when deciding whether to grant permanent injunctions against patent infringement, overturning the prior rule which had been more indiscriminating in making available injunctive relief.³ The decision reverberated far past the initial patent context, transforming the jurisprudence of remedies throughout American law.⁴ During oral arguments, counsel for *eBay* argued successfully against the prior rule, asserting that the profligate availability of injunctions “distorts tremendously”⁵ settlement discussions and licensing negotiations.⁶ Justice Scalia challenged *eBay*’s attorney: Is “the free

¹ 547 U.S. 388 (2006).

² See Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 8 (2012) (noting that *eBay* “represented a sea change in patent litigation”); Eric R. Claeys, *The Conceptual Relation Between IP Rights and Infringement Remedies*, 22 GEO. MASON L. REV. 825, 825 (2015) (observing that *eBay* “sparked a major reconsideration” of remedies for the infringement of intellectual property); Mark P. Gergen et al., *The Supreme Court’s Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203, 205 (2012) (asserting that *eBay* “has had [a] cataclysmic effect” and that the opinion “swept aside long-settled presumptions about when injunctive relief should issue”).

³ Claeys, *supra* note 2.

⁴ Gergen et al., *supra* note 2, at 214–19 (describing how courts now apply *eBay* to determine whether injunctions should issue in “virtually all types of cases,” including constitutional, regulatory, and contractual disputes).

⁵ Transcript of Oral Argument at 10, *eBay Inc. v. MercExchange L.L.C.*, 547 U.S. 388 (2006) (No. 05-130).

⁶ Legal scholars had already noted the effect of injunctions on licensing and settlement negotiations. Potential licensees often found themselves bargaining under the looming possibility of court-ordered injunctions, increasing the likelihood that they would agree to onerous or unfair licensing terms. See, e.g., Chien & Lemley, *supra* note 2, at 8 (asserting that prior to *eBay* “even a very weak patent could command a high royalty in settlement from defendants afraid of gambling their entire product on a jury’s decision”); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2008 (2007) (showing how the threat of an injunction can “enable a patent holder to negotiate

market [not] normally adequate” to address concerns about license negotiations, he asked?⁷ Patentees, he asserted, would grant licenses where it made “financial sense.”⁸ After all, Justice Scalia continued, “[e]verybody is in this for the money.”⁹

It turns out, in fact, that many patentees are not in it for the money. Patent holders have increasingly turned to royalty-free (or zero-rate royalty) licensing strategies for proprietary technology. Under this licensing model, patentees provide broad access to their technology at no monetary charge, but expect to either gain from non-financial licensing obligations or profit from the sale of complementary goods or technology.¹⁰ Royalty-free patent licensing commitments can arise in a range of contexts, from assurances that patentees make to standard-setting organizations to unilateral patent pledges made independent of any collaborative process.¹¹ Zero-rate patent licenses are also frequently embedded in popular open source software and hardware licenses.¹² Contrary to the assertion of Justice Scalia, in none of these licensing strategies does the patentee provide access to patented technology in exchange for money consideration.

Zero-rate commitments only fit awkwardly into *eBay*’s new world of patent remedies. As part of its four-factor test, *eBay* required all patentees seeking injunctive relief to show that continued infringement would cause “irreparable injury.”¹³ This standard

a settlement . . . significantly exceeding the amount that the patent holder could expect to earn in damages based on reasonable royalties”).

⁷ Transcript of Oral Argument, *supra* note 5, at 11.

⁸ *Id.*

⁹ *Id.*

¹⁰ See *infra* text accompanying notes 88–93.

¹¹ See discussion *infra* Part I.

¹² *Id.* Free and open source software licenses, of course, often provide users with both copyright and patent licenses. Except for a brief digression in Part IV, this Article focuses only on the patent rights included in open source licenses. For analysis of the impact *eBay* has had in the copyright context, see Jiarui Liu, *Copyright Injunctions After eBay: An Empirical Study*, 16 LEWIS & CLARK L. REV. 215 (2012).

¹³ See *eBay Inc. v. MercExchange L.L.C.*, 547 U.S. 388, 391 (2006). *eBay*, of course, required a showing of three factors in addition to “irreparable injury.” *Id.* This Article generally uses the term “irreparable injury” as shorthand both for that factor and for the second *eBay* factor—that plaintiff has an “inadequate” remedy at law. Courts and commentators have recognized that the two factors only use different words to express the same concept: that the grant of money damages will not provide sufficient

made it more difficult for patentees with a business model of licensing their technology for cash to obtain injunctive relief. Such patentees, because they widely license their technology rather than use patents to exclude competitors, cannot easily show that unauthorized use of the technology causes irreparable injury, or that the monetary compensation which they ordinarily seek from licensees provides an insufficient remedy.¹⁴ Patentees that provide royalty-free licensing commitments, however, do so only in exchange for non-financial consideration, though they also broadly license their technology. Do money damages, which courts have seen as providing adequate compensation for licensors that seek cash, also provide a sufficient remedy for a patentee that has explicitly renounced the pursuit of monetary gain? Would the *eBay* test correspondingly limit the ability of such patentees to obtain injunctions against infringement?

This Article argues that the increasingly popular royalty-free commitment produces sharp discord between two well-accepted strands of patent remedy law concerning injunctive relief, and provides no easy means of reconciling that conflict. On the one hand, the royalty-free commitment implicates a succession of cases maintaining that courts will not grant injunctions to patentees which indiscriminately license their patented technology.¹⁵ These doctrines have been applied in cases where “patent trolls” rear their heads, and have also recently culminated in case law limiting the availability of injunctive relief for patentees that have made fair,

compensation to the plaintiff. *See, e.g.*, Gergen et al., *supra* note 2, at 209 (asserting that *eBay*’s “requirements of (1) irreparable injury and (2) inadequacy of legal remedies are redundant as these are, traditionally speaking, one and the same”); *see also* ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc., 694 F.3d 1312, 1337 (Fed. Cir. 2012) (“[I]ssues of irreparable harm and the adequacy of remedies at law are inextricably intertwined.”); MercExchange L.L.C. v. eBay, Inc., 500 F. Supp. 2d 556, 569 n.11 (E.D. Va. 2007) (“The irreparable harm inquiry and remedy at law inquiry are essentially two sides of the same coin.”). The other two *eBay* factors—balance of the hardships and the public interest—have generally not been relevant to judicial analysis of the effect of a patentee’s licensing activity on the issuance of an injunction and, as such, will not be considered by this Article.

¹⁴ *See* discussion *infra* Section II.B (discussing the effect of *eBay* on the issuance of injunctions to “patent trolls”) and Section II.C (discussing the effect of *eBay* on the issuance of injunctions for fair, reasonable, and non-discriminatory encumbered patents).

¹⁵ *See infra* Section III.A.

reasonable, and non-discriminatory (“FRAND”)¹⁶ commitments, under which firms pledge to license their patented technology under “fair, reasonable and non-discriminatory” terms.¹⁷ On the other hand, conflicting jurisprudence points to the importance of courts providing injunctive relief in situations where infringement damages are challenging to calculate in monetary terms. According to these precedents, if a court cannot accurately quantify damages from infringement, it should provide injunctive relief and let the parties come to a price themselves.¹⁸ These two lines of cases come into sharp conflict in the royalty-free licensing commitment, where patentees grant broad access to their technology, but at the same time expressly refuse financial reward and provide such access only in exchange for non-monetary obligations the value of which may be extraordinarily difficult to measure.

This conflict reflects a more extensive jurisprudential disregard of the varied uses of patent rights in the modern economy. *eBay* and its progeny echo the classic dichotomy: Patents can be used to fence off certain technologies from competitors, or they can be licensed for monetary reward. Lost in this analysis, however, is how patents can be—and increasingly are—employed toward more intangible goals. Patentees wield patent rights not only to exclude or seek financial gain, but also in pursuing freedom of use, in nudging

¹⁶ For a more detailed discussion of FRAND commitments, see *infra* Section II.C. This Article generally uses the FRAND (rather than reasonable and non-discriminatory, or RAND) terminology, as does the leading case, *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286 (Fed. Cir. 2014), which is also discussed in more detail in Section II.C. Scholars have not noted any meaningful distinction between the FRAND or RAND nomenclature.

¹⁷ Some well-accepted acronyms for the royalty-free licensing commitment highlight the similarity to FRAND pledges. Royalty-free commitments, for example, are often referred to as RAND-Z (meaning RAND licenses at a zero-rate royalty) or RAND-RF (meaning RAND licensing under royalty-free terms). Both of these labels highlight the promise to provide licenses without compensation, but also denote that such licensing commitments do not preclude the inclusion of additional “reasonable and non-discriminatory” non-monetary terms. See, e.g., *Lotes Co. v. Hon Hai Precision Indus. Co.*, 753 F.3d 395, 401 (2d Cir. 2014) (analyzing “RAND-Zero” terms in a licensing commitment).

¹⁸ See discussion *infra* Section III.B; see also Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2664 (1994) (arguing that “[c]ourts are simply not well-situated to make difficult valuations” in the field of intellectual property infringement and that, as a result, “property rules” enforced by injunctions may be more appropriate).

markets toward certain technologies, and in structuring frameworks for collaborative communities.¹⁹ Courts, unfortunately, have been hesitant in grappling with this complexity. The doctrinal contradictions of the royalty-free commitment stem from this deeper failure to develop a patent remedy jurisprudence that addresses these non-monetary ambitions.

This Article proceeds as follows: Part I provides a broad overview of royalty-free licensing commitments, demonstrating how such commitments arise in a broad range of contexts from standard-setting organizations to open source licenses. While zero-rate commitments do not demand the payment of money royalties, they do impose a range of non-financial obligations. Part I also analyzes some of these latter obligations, and shows how such non-monetary devices further the commercial and collaborative goals of patentees. Part II surveys prior case law considering the impact of licenses and licensing commitments on the availability of injunctive relief for patent infringement—from patent trolls to FRAND licensing obligations. Part III applies this prior jurisprudence in the context of royalty-free licensing commitments, demonstrating how that context produces sharp tension between doctrines of patent remedy law which may be well accepted in other contexts. Part IV examines how non-monetary commitments have been considered in other patent infringement settings, demonstrating how the doctrinal conflicts which surface in the royalty-free commitment have deep roots in patent remedy jurisprudence. The Conclusion puts forward some modest prescriptive suggestions.

¹⁹ See discussion *infra* Section I.E (describing how royalty-free commitments are used to promote interoperable technologies and how non-monetary obligations are employed to cement collaborative relationships) and Part IV (explaining how cross-licensing strategies are aimed toward achieving freedom to operate); see also Nicos L. Tsilas, *Open Innovation and Interoperability*, in *OPENING STANDARDS: THE GLOBAL POLITICS OF INTEROPERABILITY* 97, 97 (Laura DeNardis ed., 2011) (arguing that “IP’s legal power to exclude is increasingly being replaced by its real-world ability to serve as a bridge to collaboration”).

I. ROYALTY-FREE LICENSES AND COMMITMENTS

Royalty-free licenses and royalty-free commitments find increasingly widespread use.²⁰ This Part reviews the terms of several prominent zero-rate commitments in a range of contexts, from royalty-free assurances that are provided in the setting of a collaborative development process to pledges that are provided unilaterally by the patentee. Zero-rate commitments are also used in common licensing structures, such as free and open source licenses and defensive licensing arrangements. In short, royalty-free arrangements are pervasive in the modern high-technology industry.

This review of royalty-free arrangements draws out several broader themes. First, this Article focuses on commitments that are “non-discriminatory.” Scholars have debated the meaning of commitments to provide licenses on a “non-discriminatory” basis, but most fundamentally the term means that the licensor will not deny a license to any party, regardless of such party’s identity or competitive position.²¹ In other words, by providing a commitment that is both royalty-free and non-discriminatory, a patentee waives two significant legal rights. First, in making the royalty-free commitment, a patentee waives its right to seek compensation for the use of its intellectual property. Second, in making the non-discriminatory commitment, a patentee waives its right to refuse to license the committed patent, notwithstanding the patent holder’s ordinary legal prerogative to choose its business partners.²² The

²⁰ A license is distinct from a licensing commitment in that the latter only constitutes a pledge to provide a license but does not actually provide the requisite rights to access or use the technology. The distinction can be important where, as in the FRAND context, a licensing commitment leaves significant aspects of the license for future negotiation. *See, e.g.,* Richard Gilbert, *Deal or No Deal? Licensing Negotiations in Standard-Setting Organizations*, 77 ANTITRUST L.J. 855, 859 (2011) (discussing a range of possibilities for structuring FRAND royalty rates). The distinction may also be important in specific legal contexts such as contract or bankruptcy law. *See generally* Jay P. Kesan & Carol M. Hayes, *FRAND’s Forever: Standards, Patent Transfers, and Licensing Commitments*, 89 IND. L.J. 231 (2014). For the sake of brevity, the terminology of this Article does not always explicitly distinguish between royalty-free licenses and royalty-free licensing commitments (except where necessary).

²¹ *See generally* Eli Greenbaum, *The Non-Discrimination Principle in Open Source Licensing*, 37 CARDOZO L. REV. 1297 (2016).

²² Under general principles of patent law, a patentee is ordinarily free to refuse to license its invention. *See, e.g.,* *Hartford-Empire Co. v. United States*, 323 U.S. 386, 432 (1945) (“A patent owner is not . . . under any obligation to see that the public acquires the

surrender of these two rights is closely connected. Most discussions concerning “non-discrimination” in licensing commitments focus on whether and to what extent a committed patentee may collect different royalty rates from differently situated licensees.²³ The royalty-free assurance, however, obviates this debate by setting the royalties for all licensees at zero. As such, by removing the ability to price-discriminate, the zero-rate assurance also reinforces the “non-discrimination” prong of the licensing commitment. Later sections of this Article will discuss the import of the non-discriminatory features of these commitments to the remedies available for their breach.²⁴

Second, this Part shows that zero-rate commitments, though they do not require the payment of cash consideration, do typically impose significant non-monetary requirements and limitations. Section I.E also demonstrates the importance of such non-monetary requirements to the patentee, and how such devices are often structured to further the ultimate ambitions motivating the royalty-free license.²⁵ An understanding of the rationales underlying such non-monetary requirements can be essential for determining the appropriate legal remedies for their breach. Later sections of this Article will apply these discussions to examine whether *eBay* provides a coherent framework for analyzing the infringement of patents that are subject to royalty-free patent licensing commitments.²⁶

free right to use the invention. He has no obligation either to use it or to grant its use to others.”); *In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322, 1328 (Fed. Cir. 2000) (Defendant “was under no obligation to sell or license its patented parts and did not violate the antitrust laws by refusing to do so.”); *SCM Corp. v. Xerox Corp.*, 645 F.2d 1195, 1204 (2d Cir. 1981) (The refusal by a patent holder to license is “expressly permitted by the patent laws.”); *see also* 35 U.S.C. § 271(d)(4) (2012) (providing that refusal to license patents does not constitute patent misuse).

²³ *See* Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMP. L. & ECON. 531 (2013) (summarizing literature on the non-discrimination prong of FRAND commitments); Gilbert, *supra* note 20, at 859–60 (discussing how non-discrimination commitments allow for a range of royalties and royalty structures).

²⁴ *See infra* Part III.

²⁵ *See infra* Section I.E.

²⁶ *See infra* Part III.

A. Standards Organizations

Royalty-free arrangements are a common feature of the commitments that participants provide to collaborative standards organizations, especially those organizations that develop technical standards for the Internet.²⁷ The World Wide Web Consortium (“W3C”), for instance, is a prominent example of a standards organization that requires participants to make non-discriminatory royalty-free commitments.²⁸ W3C is a central organization developing standards for the World Wide Web, and currently boasts approximately 400 members internationally.²⁹ All participants in the creation of W3C standards agree to the “W3C Patent Policy,” which was formally adopted by the organization in February 2004.³⁰ According to the policy, W3C participants agree to provide royalty-free licenses for any patents that cover an agreed technical standard on a non-discriminatory basis—to “all, worldwide, whether or not they are W3C Members.”³¹ At the same time, the policy allows participants to impose some non-monetary conditions: Participants may narrow the scope of the license to the specific requirements of the implementation of the standard.³² In addi-

²⁷ See U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 47 (2007) (“The evolution of the Internet may present the best opportunity to study market experiments in royalty-free licensing.”).

²⁸ For a history of the royalty-free licensing architecture of the W3C, see Andrew L. Russell, *Constructing Legitimacy: The W3C’s Patent Policy*, in OPENING STANDARDS: THE GLOBAL POLITICS OF INTEROPERABILITY, *supra* note 19, at 159, 167.

²⁹ *About W3C*, W3C, <http://www.w3.org/Consortium/> [<https://perma.cc/L5WM-WQM7>] (last visited Oct. 11, 2016); *Current Members*, W3C, <https://www.w3.org/Consortium/Member/List/> [<https://perma.cc/JT6Q-PPPX>] (last visited Oct. 11, 2016).

³⁰ *W3C Patent Policy*, W3C, <http://www.w3.org/Consortium/Patent-Policy-20040205/> [<https://perma.cc/Q96G-YC9L>] (last visited Oct. 11, 2016).

³¹ *Id.* §§ 3.1, 5.

³² *Id.* § 5 (stating that royalty-free licenses may be limited to “implementations of the Recommendation, and to what is required by the Recommendation”); *id.* § 8 (detailing the definition of the “Essential Claims” which must be licensed royalty-free). Certain supporters of free and open source software have objected to the possibility of limiting W3C licenses to the agreed specifications of the standard. According to these advocates, such limitations would be inconsistent with the freedom to modify licensed software generally provided by free and open source software licenses. See Free Software Found., *FSF’s Position on W3 Consortium “Royalty-Free” Patent Policy*, GNU OPERATING SYS. (June 1, 2003), <http://www.gnu.org/philosophy/w3c-patent.en.html> [<https://perma.cc/ACT5-GKUW>].

tion, participants may also condition any license on the grant of a reciprocal royalty-free license.³³ The W3C will generally not approve a standard if the patentee does not make the technology available under the required royalty-free terms.³⁴

Some standards organizations allow, but do not require, participants to provide non-discriminatory royalty-free commitments. The Internet Engineering Task Force (“IETF”), for example, is a standards body responsible for developing standards for the Internet, including the widely used communication protocol TCP/IP.³⁵ The IETF requires participants to disclose whether they own patents covering their contributions to any proposed standard, and recommends that disclosures specify whether such rights are available on a non-discriminatory basis under either royalty-free terms or other reasonable terms.³⁶ The IETF takes such disclosed licensing information into account when deciding on the specifications of a standard, and explicitly prefers technology that is either not covered by patents or is available under royalty-free terms.³⁷ In practice, a large number of contributors to IETF standards make their patent rights available on a royalty-free basis.³⁸ As with other stan-

³³ *W3C Patent Policy*, *supra* note 30, § 5.4 (stating that royalty-free licenses may be “conditioned on the grant of a reciprocal RF [royalty-free] license”).

³⁴ *Id.* § 2. Section 7.5.3 of the W3C Patent Policy sets out an involved procedure for approving, in exceptional situations, license terms that are not royalty-free. *See id.* § 7.5.3.

³⁵ The IETF has been described as “the single most important Internet standards body.” Lawrence Lessig, *The Limits in Open Code: Regulatory Standards and the Future of the Net*, 14 BERKELEY TECH. L.J. 759, 760 n.2 (1999). For a description of the history, structure, and function of the IETF, see Scott Bradner, *The Internet Engineering Task Force*, in OPEN SOURCES: VOICES FROM THE OPEN SOURCE REVOLUTION 47 (Chris Debona et al. eds., 1999).

³⁶ *See* S. Bradner, *Intellectual Property Rights in IETF Technology*, INTERNET ENGINEERING TASK FORCE § 6 (Mar. 2005), <https://www.ietf.org/rfc/rfc3979.txt> [<https://perma.cc/J938-ZYH2>] (requiring disclosure of intellectual property rights covering contributions); *id.* § 6.5 (specifying the licensing information to be included in a disclosure, such as whether “all persons will be able to obtain” the applicable rights under “non-discriminatory” royalty-free terms or under terms that are “non-discriminatory” but require a “reasonable royalty or other payment”).

³⁷ *Id.* § 8.

³⁸ Jorge L. Contreras, *Technical Standards and Ex Ante Disclosure: Results and Analysis of an Empirical Study*, 53 JURIMETRICS J. 163, 182–83 (2013) (finding that more than half of all licensing disclosures to the IETF contained royalty-free or patent non-assertion commitments). The Institute of Electrical and Electronics Engineers Standards Association (“IEEE-SA”) is another prominent standards organization that allows participants to choose either a RAND or royalty-free licensing policy. *See Letter of*

dards organizations, the IETF allows participants to impose certain minimal non-monetary conditions.³⁹ Empirical studies have found that a majority of IETF commitments include non-monetary conditions, such as demands that any license include defensive suspension provisions⁴⁰ or that licensees provide reciprocal patent licenses.⁴¹

A number of standard-setting organizations outside the Internet context also require that participants make royalty-free commitments. These include the USB Implementers Forum (“USB-IF”), which develops specifications for the Universal Serial Bus (“USB”) standards, and the Bluetooth Special Interest Group (“Bluetooth SIG”), which designs the Bluetooth standard for wireless data transmission.⁴² In contrast to the W3C and IETF, which announced general patent policies but left individual members to hammer out the particular terms of any bilateral license agreement, both the USB-IF and Bluetooth SIG set out more specific license terms.⁴³ The USB-IF, for example, requires adopters to agree to the detailed provisions of the USB 3.0 Adopters Agreement, which details the royalty-free license terms that such adopters agree to

Assurance for Essential Patent Claims, IEEE STANDARDS ASS’N (Dec. 2015), <https://development.standards.ieee.org/myproject/Public//mytools/mob/loa.pdf> [<https://perma.cc/U545-PDRK>]. In contrast to the IETF, however, most licensing disclosures to the IEEE-SA do not provide for royalty-free licensing commitments. *See* Contreras, *supra*, at 183 n.88.

³⁹ Bradner, *supra* note 36, § 6.5(a) (specifying that contributors may state that they will make technology available under “royalty-free and otherwise reasonable and non-discriminatory” terms).

⁴⁰ *See, e.g.*, Contreras, *supra* note 38, at 182. A defensive suspension provision (sometimes referred to as a defensive termination provision) allows the licensor to terminate the license, typically in circumstances where the licensee brings a patent infringement suit against the licensor. As the discussion below will show, the scope of such defensive provisions can vary.

⁴¹ Contreras, *supra* note 38, at 182.

⁴² *See About USB Implementers Forum, Inc.*, UNIVERSAL SERIAL BUS, <http://www.usb.org/about> [<https://perma.cc/7LR2-SJ6K>] (last visited Oct. 11, 2016); *Bluetooth Core Specification*, BLUETOOTH, <https://www.bluetooth.com/specifications/bluetooth-core-specification> [<https://perma.cc/KN7M-JAJF>] (last visited Nov. 4, 2016).

⁴³ *Bluetooth Patent/Copyright License Agreement*, BLUETOOTH § 5, https://www.bluetooth.org/DocMan/handlers/DownloadDoc.aspx?doc_id=67s [<https://perma.cc/7EGC-SY4U>] (last visited Oct. 11, 2016) [hereinafter *Bluetooth License Agreement*]; *USB 3.0 Adopters Agreement*, UNIVERSAL SERIAL BUS § 2.1(b), http://www.usb.org/developers/docs/USB_3_0_Adopters_Agreement_Final_020411.pdf [<https://perma.cc/W65U-TTLY>] (last visited Oct. 11, 2016).

provide all other implementers of the technology.⁴⁴ The Bluetooth Patent/Copyright License Agreement provides for a similar royalty-free license for implementations of the Bluetooth specification.⁴⁵ Notwithstanding these royalty-free licenses, both agreements include important non-monetary terms. For example, both agreements narrowly define the scope of the royalty-free commitment, limiting any license to the specific patent claims that are necessary for interoperability with the agreed specifications⁴⁶ and both agreements in effect condition their royalty-free licenses on the reciprocal grant of a license at the same zero rate.⁴⁷

B. Commitments Outside of Standards

Some royalty-free patent commitments are made independent of any standards development process. For example, both IBM⁴⁸ and Google⁴⁹ have made unilateral commitments not to assert specific listed patents against any open source software, effectively granting all users and developers of open source software a royalty-

⁴⁴ *USB Adopters 3.0 Agreement*, *supra* note 43. The USB 3.0 Contributors Agreement, signed by all contributors to the USB 3.0 specifications, contained a similar license provision. *See Lotes Co. v. Hon Hai Precision Indus. Co.*, 753 F.3d 395, 401 (2d Cir. 2014).

⁴⁵ *Bluetooth License Agreement*, *supra* note 43, § 5.

⁴⁶ Section 2.1 of the USB 3.0 Adopters Agreement, together with related definitions in Sections 1.5, 1.7, and 1.9 of the agreement, limits the scope of the granted patent license. *See USB Adopters 3.0 Agreement*, *supra* note 43, §§ 1.5, 1.7., 1.9, 2.1. The Bluetooth License Agreement contains analogous provisions. *See Bluetooth License Agreement*, *supra* note 43, § 1(j), 1(o), 1(p).

⁴⁷ *See Bluetooth License Agreement*, *supra* note 43, § 5(b) (providing that the royalty-free license may be changed to a royalty-bearing license if the licensor is sued for patent infringement for the manufacture, use, or sale of Bluetooth-compatible products); *USB 3.0 Adopters Agreement*, *supra* note 43, § 2.1(a)-(b) (providing that license grants “may be conditioned upon Licensee’s grant of a reciprocal license”).

⁴⁸ *See IBM Statement of Non-Assertion of Named Patents Against OSS*, IBM, <http://www.ibm.com/ibm/licensing/patents/pledgedpatents.pdf> [<https://perma.cc/JPZ5-28B7>] (last visited Oct. 11, 2016) [hereinafter *IBM OSS Pledge*]. The IBM OSS Pledge is provided indiscriminately to “any open source software developer, distributor, or user.” *Id.*

⁴⁹ *See Open Patent Non-Assertion Pledge*, GOOGLE, <https://www.google.com/patents/opnpledge/pledge/> [<https://perma.cc/S3WC-L4WS>] (last visited Oct. 11, 2016) [hereinafter *Google Open Patent Pledge*]. The Google Open Patent Pledge is indiscriminately provided to “each person or entity that develops, distributes or uses Free or Open Source Software.” *Id.*

free license to those particular patents.⁵⁰ As with commitments made to standards organizations, these unilateral pledges are subject to specific non-monetary conditions. First, most obviously, the scope of the pledges is strictly limited to open source software.⁵¹ Second, both pledges contain reciprocal or defensive licensing provisions. The Google Open Patent Pledge, for instance, states that the pledge can be terminated against any entity that files any kind of patent infringement lawsuit against Google, any of Google's affiliates, or against any of Google's products or services.⁵² The IBM pledge provides that the pledge can be terminated against any entity that files a lawsuit against any open source software.⁵³ In other words, any entity that wants to rely on the Google or IBM pledges may find itself substantially constrained in how it can assert its own intellectual property rights.

In June 2014, Tesla Motors publicized a unilateral patent commitment which garnered a great deal of media attention. Tesla announced on its Internet blog that the firm would “not initiate patent lawsuits against anyone who, in good faith, wants to use our technology.”⁵⁴ The informal pledge was soon followed up with more formal legal terms, which detailed the scope and conditions

⁵⁰ Federal courts have held that a covenant not to assert patent rights is equivalent to a patent license. *See, e.g.,* TransCore, LP v. Elec. Transaction Consultants Corp., 563 F.3d 1271, 1276 (Fed. Cir. 2009) (“The real question, then, is not whether an agreement is framed in terms of a ‘covenant not to sue’ or a ‘license.’ That difference is only one of form, not substance—both are properly viewed as ‘authorizations.’”).

⁵¹ Both the Google and IBM pledges contain detailed definitions of “open source software.” *See Google Open Patent Pledge, supra* note 49; *IBM OSS Pledge, supra* note 48. The Google pledge further narrows the scope of the commitment by clarifying that the pledge does not apply to open source software “combined with special purpose hardware or with software that is not Free or Open Source Software.” *Google Open Patent Pledge, supra* note 49.

⁵² *Google Open Patent Pledge, supra* note 49 (stating that it is “only fair that we condition the Pledge upon the Pledge Recipient (and its affiliates) not asserting or profiting from the assertion of patents against Google, its affiliates, or its products or services”).

⁵³ *IBM OSS Pledge, supra* note 48 (stating that IBM “reserves the right to terminate this patent pledge and commitment only with regard to any party who files a lawsuit asserting patents or other intellectual property rights against Open Source Software”).

⁵⁴ Elon Musk, *All Our Patents Are Belong to You*, TESLA BLOG (June 12, 2014), <http://www.teslamotors.com/blog/all-our-patent-are-belong-to-you> [https://perma.cc/CFG6-MAPC].

of the commitment.⁵⁵ The formal legal terms amplified Tesla's informal "good faith" requirement into a rather expansive defensive condition, clarifying that the patent pledge would not be extended to firms that bring any patent claims against Tesla or any other firm's electric vehicle technology, or that imitated or copied the "design or appearance of a Tesla product or which suggests an association or endorsement by Tesla."⁵⁶

The Eco-Patent Commons comprises a number of firms that have organized to provide indiscriminate royalty-free patent rights unconnected to any standards development process. The Eco-Patent Commons "manages a collection of patents pledged for unencumbered use . . . to improve and protect the global environment."⁵⁷ Under the terms of the Commons' Non-Assert Pledge, all members provide a commitment not to assert certain pledged patents when used for environmental applications.⁵⁸ As usual, the commitment is subject to the regular non-monetary devices. First, the commitment is of narrow scope in that it is limited to specific environmental fields.⁵⁹ Second, the Eco-Patent Pledge is subject to broad defensive termination conditions.⁶⁰

⁵⁵ *Patent Pledge*, TESLA (June 12, 2014), <https://www.teslamotors.com/about/legal#patent-pledge> [<https://perma.cc/3FKP-W2XY>].

⁵⁶ *Id.* Six months later, Toyota made a similar public announcement that it would make available "thousands of hydrogen fuel cell patents royalty free." *See Toyota Opens the Door and Invites the Industry to the Hydrogen Future*, TOYOTA USA NEWSROOM (Jan. 5, 2015), <http://www.toyotaneewsroom.com/releases/toyota+fuel+cell+patents+ces+2015.htm> [<https://perma.cc/8QHC-M28D>]. The press release stated that Toyota would "request, but will not require, that other companies share their fuel cell-related patents with Toyota for similar royalty-free use." *Id.* At the same time, Toyota made clear that any royalty-free license would be subject to the negotiated provisions of a license agreement that could include "additional details, including licensing terms." *Id.*

⁵⁷ *See About the Eco-Patent Commons*, ECO-PATENT COMMONS, <https://ecopatentcommons.org/about-eco-patent-commons> [<https://perma.cc/YKG5-YT7X>] (last visited Oct. 11, 2016).

⁵⁸ *Non-Assert Pledge*, ECO-PATENT COMMONS, <https://ecopatentcommons.org/sites/default/files/docs/ecopatentgroundrules.pdf> [<https://perma.cc/LG94-K6UQ>] (last visited Oct. 11, 2016) [hereinafter *Eco-Patent Pledge*]. The Eco-Patent Pledge is quite explicit in its non-discriminatory nature, stating that "[t]his pledge is available to everyone directly from us." *Id.*

⁵⁹ The Eco-Patent Pledge is limited to a product or service that "reduces/eliminates natural resource consumption, reduces/eliminates waste generation or pollution, or otherwise provides environmental benefit(s)." *Id.*

⁶⁰ *See id.* The Eco-Patent Pledge also contains an additional, narrower defensive provision applicable to members of the Commons. *Id.*

C. Free and Open Source Licenses

Open source licenses often provide for royalty-free patent rights. Open source licenses can be used by individual firms releasing their own software code, as well as by collaborative projects that use open source licenses to help coordinate the legal terms of cooperation.⁶¹ In other words, open source licenses provide template terms for the licensing of intellectual property in a variety of unrelated circumstances. All free and open source licenses, however, are by definition non-discriminatory: A patentee that provides materials under an open source license provides the same patent rights to all users of the licensed materials, and forgoes the right to select its future licensees.⁶²

A number of popular free and open source licenses contain express royalty-free patent licenses. The Apache 2.0 open source license, for example, is used by a range of prominent open source software projects, including the Android mobile operating system (unilaterally developed by Google) and the OpenStack project (a collaborative development of cloud computing software).⁶³ The Apache license provides all users of these projects with a clear royalty-free patent license, stating that users receive from contributors a “no-charge, royalty-free” license for certain patent claims

⁶¹ See, e.g., STEVEN WEBER, *THE SUCCESS OF OPEN SOURCE* 179 (2004) (describing open source licenses as a “de facto constitution” for an open source collaboration, which, “[i]n the absence of hierarchical authority, . . . becomes the core statement of the social structure” of an open source community).

⁶² See Free Software Found., *What is Free Software?*, GNU OPERATING SYS., <https://www.gnu.org/philosophy/free-sw.html> [<https://perma.cc/RV4Z-CAL7>] (last visited Oct. 11, 2016) (noting that “free” software must be free for redistribution to “anyone anywhere,” “for any purpose,” “on any kind of computer system”); *The Open Source Definition (Annotated)*, OPEN SOURCE INITIATIVE §§ 5–6, <http://opensource.org/osd-annotated> [<https://perma.cc/KK4G-9K9A>] (last visited Oct. 11, 2016) (stating that open source software cannot discriminate against specific “person or groups of persons” or “fields of endeavor”). See generally Greenbaum, *supra* note 21.

⁶³ For the text of the Apache 2.0 License, see *Apache License*, APACHE SOFTWARE FOUND. (Jan. 2004), <http://www.apache.org/licenses/LICENSE-2.0> [<https://perma.cc/ND7Q-V47M>]. For background on Google’s development and distribution of Android, see STEVEN LEVY, *IN THE PLEX: HOW GOOGLE THINKS, WORKS, AND SHAPES OUR LIVES* 214–15 (2011). For information on the OpenStack project and its diverse collection of contributors, see OPENSTACK, <https://www.openstack.org> [<https://perma.cc/PV4N-HWHC>] (last visited Oct. 11, 2016).

covering that software.⁶⁴ Similarly, the popular General Public License (“GPL”) is used by projects as varied as Linux (a collaboratively developed operating system) and MySQL (database software owned and unilaterally developed by Oracle).⁶⁵ The latest version of the GPL provides users with a royalty-free patent license of scope comparable to the patent terms of the Apache license.⁶⁶

The absence of royalty payment obligations in free and open source licenses does not mean that these licenses come with no strings attached. In fact, both the Apache and GPL patent licenses impose significant non-monetary conditions. Both licenses expressly limit the scope of the granted patent rights.⁶⁷ In addition, both

⁶⁴ *Apache License*, *supra* note 63, § 3.

⁶⁵ See *Frequently Asked Questions*, LINUX KERNEL ARCHIVES (May 12, 2016), <https://www.kernel.org/category/faq.html> [<https://perma.cc/3ZGZ-VHSF>] (noting how the Linux kernel is released under GNU GPL version 2); *MySQL Community Edition*, MYSQL, <https://www.mysql.com/products/community/> [<https://perma.cc/8K7C-5ENE>] (last visited Oct. 11, 2016) (making available the MySQL Community Edition under the terms of the GPL).

⁶⁶ The most current version of the GPL is available at Free Software Found., *GNU General Public License*, GNU OPERATING SYS. (June 29, 2007), <http://www.gnu.org/licenses/gpl-3.0.en.html> [<https://perma.cc/986J-WEUX>] [hereinafter *GPLv3*]. Section 11 of the license states that “[e]ach contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor’s essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.” *Id.* § 11. Earlier versions of the GPL, such as GPLv2, used by Linux and MySQL, do not expressly provide for a royalty-free patent license. At the same time, commentators have assumed that such earlier versions also provide for an implicit royalty-free patent license. See, e.g., FREE SOFTWARE FOUND., *GPLV3 FIRST DISCUSSION DRAFT RATIONALE 17* (2006), <http://gplv3.fsf.org/gpl-rationale-2006-01-16.pdf> [<https://perma.cc/SGK4-U8Z3>] (“GPLv3 provides an explicit patent license covering any patents held by the program’s developers, replacing the implicit license on which GPLv2 relies”); see also LAWRENCE ROSEN, *OPEN SOURCE LICENSING: SOFTWARE FREEDOM AND INTELLECTUAL PROPERTY LAW* 79, 126 (2004) (discussing implied patent rights in the BSD and GPLv2 licenses).

⁶⁷ See, e.g., *Apache License*, *supra* note 63, § 3 (noting that the patent license “applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted”); *GPLv3*, *supra* note 66, § 11 (providing that the patent license does “not include claims that would be infringed only as a consequence of further modification” of the work); see also FREE SOFTWARE FOUND., *GPLV3 THIRD DISCUSSION DRAFT RATIONALE 29* (2007), <http://gplv3.fsf.org/gpl3-dd3-rationale.pdf> [<https://perma.cc/9XV9-DZUF>] (discussing limitations to the scope of the patent license in GPLv3); ROSEN, *supra* note 66, at 147–54 (discussing Mozilla’s Public License, which expressly provided a patent license but included restrictions).

licenses provide that the royalty-free grants will terminate against users that commence patent infringement litigation against the licensed work.⁶⁸ This latter provision, in restricting patent infringement suits against the licensed software, in effect conditions the royalty-free open source patent license on the user's grant of a reciprocal royalty-free license.

In addition, the GPL conditions its own patent license on a particularly unique non-monetary bargain. Users of GPL software commit to continue distributing any modifications or developments to that software under the same GPL terms.⁶⁹ In other words, the licensee of GPL software is free to continue the development of the software, but she is not free to change the license terms of any further developments, and any downstream user of the software (including any improved version of the software) must be provided with the software source code and the same rights as the original licensee. Users that do not satisfy this non-monetary "copyleft" requirement can have their patent licenses terminated.⁷⁰ In other words, as with other royalty-free commitments, the royalty-free licenses provided under the GPL are not traded for money, but rather for a kind of reciprocal grant of intellectual property rights.

Some firms, eschewing relatively complicated open source licenses like the GPL, may choose to license software under simple free software licenses that do not contain any patent provisions. At the same time, such relatively simple licenses are often supplemented with additional language containing express royalty-free patent licenses. Google, for example, uses the plain BSD open

⁶⁸ *Apache License*, *supra* note 63, § 3 ("If You institute patent litigation . . . alleging that the Work or a Contribution incorporated within the Work constitutes . . . patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed."); *GPLv3*, *supra* note 66, § 10 (providing that "you may not initiate litigation . . . alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it"); *see also* FREE SOFTWARE FOUND., *supra* note 67, at 29 ("Read together, sections 8, 10 and 11 [of GPLv3] establish a patent termination condition for GPLv3, the scope of which is no narrower than that of the Apache/EPL variety of retaliation clause.").

⁶⁹ ROSEN, *supra* note 66, at 103–04.

⁷⁰ *See GPLv3*, *supra* note 66, § 8 ("Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).").

source license to provide software implementing WebM technology.⁷¹ The short and simple BSD license does not contain a patent license,⁷² but Google supplements the BSD license with an “Additional IP Rights Grant” which contains an express royalty-free patent license.⁷³ Google’s additional language clearly delimits the scope of the patent license.⁷⁴ Facebook also employs a similar strategy of providing software under the BSD license supplemented by additional royalty-free patent license terms.⁷⁵

D. Defensive Arrangements

Defensive patent arrangements also typically contain royalty-free patent licenses. Patent holders use intellectual property “defensively” when their primary goal is to escape the menace of patent litigation, rather than to exclude competitors or to receive monetary compensation.⁷⁶ As an illustration, semiconductor firms often cross-license their enormous patent portfolios—with each party granting the other a license to its own collection of patents.⁷⁷ Such arrangements may often be royalty-free, highlighting the fact that neither firm in such transaction seeks to monetize its patents

⁷¹ WebM is a media format standard intended to provide royalty-free technology for Internet audio and video. See *About WebM*, WEBM PROJECT, <http://www.webmproject.org/about/> [<https://perma.cc/5ZYC-KTQA>] (last visited Oct. 11, 2016); *WebM FAQ*, WEBM PROJECT, <http://www.webmproject.org/about/faq/> [<https://perma.cc/HLC9-78RT>] (last modified Sept. 1, 2015).

⁷² The BSD license used by WebM is available at *Software License*, WEBM PROJECT, <http://www.webmproject.org/license/software/> [<https://perma.cc/3DPP-WX5H>] (last visited Oct. 12, 2016).

⁷³ *Additional IP Rights Grant (Patents)*, WEBM PROJECT, <http://www.webmproject.org/license/additional/> [<https://perma.cc/RJ42-RZZP>] (last visited Oct. 11, 2016).

⁷⁴ *Id.*

⁷⁵ See Mike Arpaia, *Update Patent Grant*, GITHUB (Apr. 10, 2015), <https://github.com/facebook/osquery/blob/master/PATENTS> [<https://perma.cc/LKW9-zFU9F>]; James Pierce, *Updating Our Open Source Patent Grant*, FACEBOOK CODE (Apr. 10, 2015), <https://code.facebook.com/posts/1639473982937255/Updating-our-open-source-patent-grant/> [<https://perma.cc/44WX-E5PU>].

⁷⁶ Jason Schultz & Jennifer M. Urban, *Protecting Open Innovation: The Defensive Patent License as a New Approach to Patent Threats, Transaction Costs, and Tactical Disarmament*, 26 HARV. J.L. & TECH. 1, 6 (2013).

⁷⁷ For a general discussion of defensive patenting practices, see Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1949 (2002). Patent cross-licenses are not always royalty-free, and sometimes provide for equalizing royalty payments. *Id.* at 1949 n.249. For a more extensive discussion of patent practices in the semiconductor industry, see *infra* text accompanying notes 230–33.

through the receipt of royalties, but instead trades its patent rights for the freedom to continue its own independent commercial operations.

Threats of patent litigation have sired a range of public defensive patent arrangements. Such arrangements, though they do not facilitate collaborative development, leverage the multilateral cooperation of a broad range of interests. The Open Invention Network (“OIN”), for example, provides a “shared defensive patent pool with the mission to protect” the Linux operating system.⁷⁸ OIN operates by acquiring patents covering Linux and providing its members with royalty-free licenses for those patents.⁷⁹ In exchange for this royalty-free license, each member further grants reciprocal royalty-free licenses to both the OIN and to all other OIN members.⁸⁰ The complex royalty-free licensing relationships created by OIN are non-discriminatory in the sense that each participant loses control over the identity of its licensees. Participants grant zero-rate licenses to all other current and future OIN licensees, without any means of determining or controlling the identity of such future licensees.⁸¹ As with other royalty-free commitments, the cross-licenses granted by OIN members are limited in scope.⁸² As usual, the OIN license also contains “defensive termination” clauses, which provide that the royalty-free license may be terminated for

⁷⁸ *About OIN*, OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/about-us/> [https://perma.cc/SA8S-8XAL] (last visited Oct. 11, 2016).

⁷⁹ *OIN License Agreement*, OPEN INVENTION NETWORK § 1.1, <http://www.openinventionnetwork.com/joining-oin/oin-license-agreement/> [https://perma.cc/AE3B-UGBD] (last visited Oct. 11, 2016).

⁸⁰ *See Joining OIN*, OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/joining-oin/> [https://perma.cc/56WJ-DL5P] (last visited Oct. 11, 2016) (describing in general terms the royalty-free licenses granted by the OIN and the royalty-free cross-licensing granted by all licensees for certain Linux technology); *see also OIN License Agreement*, *supra* note 79, § 1.1 (providing an OIN license to members); *id.* § 1.2 (describing members’ cross license).

⁸¹ OIN participants may elect to retreat from providing rights to future licensees, but such determination curtails the participants benefits under the OIN license and does not revoke any rights from licensees that joined prior to such election. *See OIN License Agreement*, *supra* note 79, § 2.2.

⁸² Each OIN member’s cross-license is limited to patent claims covering the “Linux System,” which is defined in extraordinarily meticulous detail. *Linux System*, OPEN INVENTION NETWORK, <http://www.openinventionnetwork.com/joining-oin/linux-system/> [https://perma.cc/FMB4-TKLT] (last visited Oct. 11, 2016). The scope of the definition excludes a wide range of functionality. *Id.*

members that commence patent litigation against other members' use of Linux.⁸³

Other non-discriminatory zero-rate defensive arrangements include the Defensive Patent License (“DPL”), a legal mechanism in which patentees commit to use their rights for defensive purposes only.⁸⁴ The goal of the DPL is to construct a decentralized yet coordinated community that can protect innovators from aggressive patent infringement litigation.⁸⁵ Each DPL patentee grants all other DPL participants a broad, royalty-free patent license.⁸⁶ The patentee remains free to assert its patents against entities that do not join the defensive DPL arrangement, and may also assert its patents defensively against participants that, in violation of the provisions of the DPL, assert patent infringement claims against it.⁸⁷ As with the OIN, the DPL arrangement is non-discriminatory: As participants do not know the identity of future DPL participants, they cannot choose which firms will be their future zero-rate licensees.

E. Motivations

Zero-rate commitments may not be directed toward monetary rewards, but they are frequently employed in the pursuit of specific commercial goals. Moreover, to the extent a royalty-free arrangement is intended to facilitate collaborative development, the structure of the royalty-free commitment can significantly impact the organization of the community that coalesces around that arrangement. This Section illuminates the commercial calculations that

⁸³ *OIN License Agreement*, *supra* note 79, § 3.3 (noting that a licensee may suspend its royalty-free cross-licenses against a member that commences patent litigation against “products that perform substantially the same function as the Linux System”); *id.* § 3.4 (stating that royalty-free licenses granted by OIN terminate when a licensee commences patent litigation against Linux).

⁸⁴ See generally Schultz & Urban, *supra* note 76. See also DEFENSIVE PAT. LICENSE, <http://www.defensivepatentlicense.org/> [<https://perma.cc/TU69-XGKQ>] (last visited Oct. 11, 2016). The text of the DPL is available at *The Defensive Patent License 1.1*, DEFENSIVE PAT. LICENSE, <http://www.defensivepatentlicense.org/content/defensive-patent-license> [<https://perma.cc/E8CG-J54H>] (last visited Oct. 11, 2016).

⁸⁵ Schultz & Urban, *supra* note 76.

⁸⁶ *The Defensive Patent License 1.1*, *supra* note 84, § 1.

⁸⁷ *Id.* § 2(e)(i).

motivate royalty-free commitments, and the community models that can spring from such arrangements.

From a commercial perspective, royalty-free licensing commitments can foster the development of profitable markets. For example, a firm that manufactures USB or Bluetooth devices may determine that the potential benefits of marketing the device surpass the probable value of monetizing the patents. Such firms can provide powerful incentives for the broad adoption of USB or Bluetooth standards—and for the sale of their own devices implementing those standards—by providing public assurances that any patents covering the standard will be made available royalty-free.⁸⁸ In the same way, royalty-free commitments outside a standards development process can encourage other firms to invest in the development, improvement, and marketing of the same freely available technology.⁸⁹ In these ways, the commercial effect of zero-rate licensing pledges is similar to the much-analyzed FRAND com-

⁸⁸ See AM. BAR ASS'N, STANDARDS DEVELOPMENT PATENT POLICY MANUAL 57 (Jorge L. Contreras ed., 2007) [hereinafter ABA STANDARDS MANUAL] (describing how royalty-free commitments are sometimes adopted “[w]here the possible imposition of royalties is likely to affect adoption negatively”); Jorge L. Contreras, *Patent Pledges*, 47 ARIZ. ST. L.J. 543, 576–77 (2015) (“In some cases, they [patent holders] may determine that the benefits of broad, rapidly-available interoperability are so great that they prefer all participants to license their relevant patents on a royalty-free basis, thus eliminating any patent-related barrier to adoption of the standard.”); Russell, *supra* note 28, at 167 (explaining that W3C members held extensive patent portfolios but supported royalty-free standards since a “royalty-free Web would provide a platform for better growth and revenue opportunities”); Timothy S. Simcoe et al., *Competing on Standards? Entrepreneurship, Intellectual Property and Platform Technologies*, 18 J. ECON. & MGMT. STRATEGY 775, 780 (2009) (observing that firms agree to royalty-free licensing of standards because they “hope to benefit from product development lead times, backwards compatibility, or the existence of proprietary complements”).

⁸⁹ Tesla’s royalty-free commitment, for example, was expressly made for the purpose of incentivizing other firms to invest in developing the “enormous” market for electric cars. Musk, *supra* note 54. Tesla announced that it would benefit from jump-starting that market with its patent pledge, since its “true competition is not the small trickle of non-Tesla electric cars being produced, but rather the enormous flood of gasoline cars pouring out of the world’s factories every day.” *Id.*; see also Contreras, *supra* note 88, at 583 (describing how patent pledges are used to encourage the development of specific markets); Anne Layne-Farrar, *Moving Past the SEP RAND Obsession: Some Thoughts on the Economic Implications of Unilateral Commitments and the Complexities of Patent Licensing*, 21 GEO. MASON L. REV. 1093, 1099 (2014) (arguing that unilateral licensing commitments “might slow (or stop altogether) the adoption of a competing de facto standard, or might reduce rivals’ incentives to invest in the development of alternative technologies”).

mitment.⁹⁰ In both situations the patent holder surrenders some of its rights in order to promote the adoption of, and investment into, certain technology, except that, by committing to a zero-rate royalty, a patent owner sacrifices even more of its legal rights and thereby provides potentially greater incentives toward adoption of the technology.

Open source licenses (with their royalty-free patent provisions) are often directed toward similar objectives. Firms may release software under open source licenses in order to encourage the broad adoption of the software in the market, perhaps expecting to profit from a complementary product.⁹¹ Open source licenses encourage such product adoption by restraining the software owner from abusing the investments of users and developers, since once the product owner has provided open source rights, it cannot legally remove the product from the market or control its development.⁹² Such wide adoption of the freely available open source product can boost the market for the patentee's own more profitable proprietary goods. Google's Android operating system provides a classic example of this commercial strategy: Google gives away Android at no charge under an open source license, since it expects to profit from the complementary market of Internet advertising.⁹³

⁹⁰ See, e.g., Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1137 (2013) (stating that FRAND commitments "promote the standard by assuring companies implementing the standard that they will not be blocked from bringing their products to market or held up so long as they are willing to pay reasonable royalties for any standard-essential patents"). For a longer description of the purpose and structure of FRAND commitments, see discussion *infra* Section II.C.

⁹¹ JOSH LERNER & MARK SCHANKERMAN, THE COMINGLED CODE: OPEN SOURCE AND ECONOMIC DEVELOPMENT 50, 74 (2010); WEBER, *supra* note 61, at 195-96 ("Loss leaders give away open source software as a way of generating demand and seeding a larger market for a linked commercial product."); Jonathan M. Barnett, *The Host's Dilemma: Strategic Forfeiture In Platform Markets For Informational Goods*, 124 HARV. L. REV. 1861, 1893 (2011).

⁹² WEBER, *supra* note 61, at 193 (stating that open source "dramatically reduces the potential for supplier lock-in" and solves the problem of "asset-specific investments by customers"); Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 193 (2004) (The open source Linux operating system "comes without the threat of leverage and dominance that are always present with a proprietary operating system. IBM customers can commit to Linux without any fear that IBM will take advantage of them.").

⁹³ See LEVY, *supra* note 63, at 214; see also Merges, *supra* note 92, at 191 (asserting that IBM supports Linux because operating systems are "increasingly an input into [IBM's]

Though zero-rate licensors may provide rights without demanding cash compensation, they do not ordinarily mean to relinquish all of their legal rights.⁹⁴ As detailed above, royalty-free licenses and commitments typically contain significant non-monetary provisions, and these non-monetary provisions are often structured toward advancing the same commercial goals underlying the license. For example, as shown above, scope limitations are a common non-monetary provision of royalty-free commitments.⁹⁵ Such limitations further the commercial goals of the royalty-free commitment by directing industry participants toward the adoption of the specific technology covered by the commitment, and away from other competing technologies outside the license scope.⁹⁶ Moreover, as noted, patentees often make technology available royalty-free but hope to profit from collateral products.⁹⁷ Scope limitations can serve to differentiate the rights that a patentee wishes to make freely available from the complementary rights that, not being covered by the royalty-free commitment, the patentee wishes to reserve for its own business.⁹⁸

main product lines” of “network management, collaboration tools, and databases” as well as complimentary “consulting services and computer hardware”).

⁹⁴ See Tsilas, *supra* note 19, at 112 (Even the royalty-free W3C patent policy permits “reasonable terms and conditions.” Such terms and conditions can include “field-of-use restrictions, reciprocity requirements, and restrictions on sublicensing.”).

⁹⁵ Commentators have recognized the importance of such scope restrictions, both to the patentee as well as to the standard as a whole. See Brad Bittle et al., *The Expanding Role and Importance of Standards in the Information and Communications Technology Industry*, 52 JURIMETRICS J. 177, 195-96 (2012) (describing how the scope of a license commitment can be the subject of “protracted negotiations” with “profound ramifications”); Brian Kahin, *Common and Uncommon Knowledge: Reducing Conflict Between Standards and Patents*, in OPENING STANDARDS: THE GLOBAL POLITICS OF INTEROPERABILITY, *supra* note 19, at 177, 179 (“Even if implicated patents are licensed royalty-free, the patent holder may confine the license to the practicing of the standard as written, in effect limiting free implementation and further evolution of the standard.”).

⁹⁶ See Layne-Farrar, *supra* note 89, at 1099 (describing how unilateral patent pledges can discourage investment in competing technologies).

⁹⁷ See *supra* text accompanying notes 91-93.

⁹⁸ See Layne-Farrar, *supra* note 89, at 1102 (describing how license commitments may be structured to include “supporting-role patents” but exclude “differentiating patents”).

Zero-rate licenses also frequently include non-monetary terms of reciprocity and defensive termination.⁹⁹ These provisions can similarly advance the commercial goals underlying a royalty-free commitment, because they aim to allow the patentee to focus on development and marketing without the distractions of patent infringement lawsuits. Reciprocal license provisions, for example, expressly seize intellectual property rights that could otherwise be used to attack the patentee.¹⁰⁰ Defensive termination provisions similarly provide patentees with some protection against patent infringement suits.¹⁰¹ Moreover, to the extent the patentee is marketing its devices in the context of a specific technological stan-

⁹⁹ Commentators have recognized the frequent appearance of such provisions in license commitments. *See, e.g.*, Contreras, *supra* note 38, at 167 (describing “reciprocity, grantbacks, defensive suspension” provisions as “customary practices”); *see also* Lemley & Shapiro *supra* note 90, at 1156 (“A patentee that makes a FRAND commitment to an SSO covering a particular standard may reasonably expect that others with essential patents covering the same standard will make the same commitment.”); U.S. DEP’T JUSTICE & FED. TRADE COMM’N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY 9 n.21 (1995), <https://www.justice.gov/sites/default/files/atr/legacy/2006/04/27/0558.pdf> [<https://perma.cc/JVU8-QE9B>] [hereinafter ANTITRUST/IP GUIDELINES] (noting that “technology may be licensed royalty-free in exchange for the right to use other technology”). For a general description of the range of possible reciprocal provisions, see KEITH MASKUS ET AL., PATENT CHALLENGES FOR STANDARD-SETTING IN THE GLOBAL ECONOMY: LESSONS FROM INFORMATION AND COMMUNICATIONS TECHNOLOGY 46 (2013).

¹⁰⁰ MASKUS ET AL., *supra* note 99; *see also* ABA STANDARDS MANUAL, *supra* note 88, at 56 (describing the effect of the provisions implementing reciprocity).

¹⁰¹ *See* HEATHER MEEKER, OPEN (SOURCE) FOR BUSINESS: A PRACTICAL GUIDE TO OPEN SOURCE SOFTWARE LICENSING 167 (2015) (discussing the use of open source defensive provisions to defend against patent litigation); Lemley & Shapiro, *supra* note 90, at 1156 (arguing that defensive suspension provisions help protect the members of standards organizations from “hold-up” by non-members). Defensive and reciprocal provisions have not been without controversy. Officials in the Justice Department have opined that licensees should have the option to license FRAND-encumbered patents “on a cash-only basis”—in other words, without any defensive or reciprocal obligations. Renata Hesse, Deputy Assistant Att’y Gen., U.S. Dep’t of Justice Antitrust Div., Remarks as Prepared for the ITU-T Patent Roundtable: Six “Small” Proposals for SSOs Before Lunch 9–10 (Oct. 10, 2012), <https://www.justice.gov/atr/file/518951/download> [<https://perma.cc/3V6J-GX6H>]. These officials have also opined that standard organizations should “prohibit the mandatory cross-licensing of patents that are not essential to the standard or a related family of standards.” *Id.*; *see also* Kai-Uwe Kuhn et al., *Standard Setting Organizations Can Help Solve the Standard Essential Patents Licensing Problem*, CPI ANTITRUST CHRON., Mar. 2013, at 4–5 (FRAND licensors should be required to “specify a cash price for its SEPs. . . . Determining if a complex package of cross-licenses satisfies F/RAND is difficult for a third party.”).

dard, reciprocal and defensive provisions may also promote the standard itself by mitigating the risk of patent litigation for all firms implementing the standard.¹⁰²

The non-monetary “copyleft” obligations of the GPL (and similar open source licenses) can also play a crucial role in advancing certain commercial models. For example, under a “dual-licensing” model, firms may provide “teaser” software products at no charge (i.e., royalty-free) under the GPL and then, once the user has decided to adopt the product, grant additional rights for monetary compensation.¹⁰³ The initial GPL, by allowing free use of the software, can foster broad adoption and encourage the development of a community around the product.¹⁰⁴ At the same time, the GPL’s copyleft provisions encourage licensees to purchase commercial software licenses that do not impose the copyleft “pain.”¹⁰⁵

Non-monetary requirements can also play an important role in encouraging participation in a standards process or open source community or, indeed, in structuring the architecture of the collaborative community itself. For example, by narrowing the scope of the royalty-free license, standards organizations can encourage the participation of patentees that would otherwise be put off by a

¹⁰² See ABA STANDARDS MANUAL, *supra* note 88, at 64 (describing how defensive suspension provisions may be used to implement “universal reciprocity . . . among all Implementers of the Standard”); see also MASKUS ET AL., *supra* note 99, at 46 (explaining how reciprocity conditions can sometimes be extended to “all implementers” of the standard).

¹⁰³ See, e.g., HEATHER MEEKER, THE OPEN SOURCE ALTERNATIVE: UNDERSTANDING RISKS AND LEVERAGING OPPORTUNITIES 143 (2008) (describing dual-licensing business models); ROSEN, *supra* note 66, at 262 (discussing dual-licensing business models).

¹⁰⁴ See Michael Olson, *Dual Licensing*, in OPEN SOURCES 2.0: THE CONTINUING EVOLUTION 78 (Chris DiBona et al. eds., 2005) (asserting that in dual-licensing structures the “open source product is ubiquitous as a result of an inexpensive distribution channel”).

¹⁰⁵ *Id.* at 83 (arguing that dual-licensing structures only work with software licenses that “cause enough pain that some users would rather pay money than endure the pain”). The dual-licensing strategy is prominently employed by Oracle in its distribution of the MySQL database software. Oracle makes a version of MySQL available under the terms of the GPL, and a version of MySQL with additional tools and support available for monetary compensation. This dual-licensing model was well-described by the European Commission in its decision allowing the merger of Oracle with Sun Microsystems. See Commission Decision COMP/M.5529, slip op. ¶¶ 234-51 (Jan. 21, 2010), cited in 2010 O.J. (C 91) 7.

broad licensing commitment. Scope limitations can be particularly important for zero-rate arrangements where the patentee relinquishes almost all rights to monetize the patent, since patentees could be reluctant to participate in such frameworks were they not narrowly constructed to sweep in only cherry-picked patents.¹⁰⁶ The royalty-free patent provisions in open source licenses are similarly limited in scope to the specific software provided by the licensor.¹⁰⁷ This limitation encourages participation in the open source community, since potential participants may otherwise be deterred by open source patent licenses of unmanageably broad scope.¹⁰⁸

Defensive and reciprocal provisions may similarly encourage otherwise hesitant patentees to participate in a collaborative framework.¹⁰⁹ These non-monetary licensing conditions permit participants to have their cake and eat it too: to provide the licens-

¹⁰⁶ See Bittle et al., *supra* note 95, at 195 (asserting that “[a]n IP Policy that has an overly broad application . . . could have the unintentional impact of limiting the number of industry players that are willing to participate in that SSO”); Michele K. Herman, *Negotiating Standards-Related Patent Licenses: How the Deal is Done*, 3 LANDSLIDE 31 (2010) (noting that the scope of royalty-free patent licenses is ordinarily more limited than the scope of FRAND licenses); Tsilas, *supra* note 19, at 112 (arguing that “prohibiting other reasonable licensing terms . . . would likely deter patent holders from participating in and contributing to the standards development process”); cf. Anne Layne-Farrar & Josh Lerner, *To Join or Not to Join: Examining Patent Pool Participation and Rent Sharing Rules*, 29 INT’L J. INDUS. ORG. 294, 297 (2011) (hypothesizing that royalty-free licensing results in lower rates of patent pool participation).

¹⁰⁷ See sources cited *supra* note 67.

¹⁰⁸ See FREE SOFTWARE FOUND., *supra* note 67, at 18 (stating that if overbroad “patent license requirements convince patent-holding companies to remain outside the distribution path of all GPL-covered software, then these requirements, no matter how strong, will cover few patents”). Such scope limitations can be particularly important for open source licenses where the user is permitted to modify and develop the licensed software—though the software itself can grow and change over time, the scope of the patent license remains narrowly targeted to further the adoption of the patentee’s own products. *Id.* at 20 (The “claim set” covered by GPLv3 “cannot expand as a work is further modified downstream. If it could, then any software patent claim would be included, since any software patent claim can be infringed by some further modification of the work.” (parentheses omitted)).

¹⁰⁹ Jason W. Croft, *Going Green: Why Companies Are Offering Environmentally Responsible Technologies*, 19 SE. ENVTL. L.J. 97, 104 (2010) (noting that the defensive termination provisions of the Eco-Patent Commons “should motivate companies to join” the organization); Lemley & Shapiro, *supra* note 90, at 1156 (stating that “defensive suspension helps . . . encourage[] participation in the FRAND commitment and perhaps the SSO itself”). *But see* ROSEN, *supra* note 66, at 215–17 (discussing how overbroad defensive provisions discourage use of open source software).

ing commitment but to simultaneously retain the rights to use the committed patents defensively when confronted with potential patent litigation. These provisions can reassure potential participants that their involvement in a standards process or open source development will not be abused by potential rivals.¹¹⁰ Again, such non-monetary provisions can be particularly important in royalty-free commitments where participants otherwise disclaim rights to monetize the patent.¹¹¹

Significantly, non-monetary provisions can be important to the architecture of a collaborative community. The reciprocal obligations of the GPL, for example, push project participants toward collaboration rather than competition. Since all contributors are required to preserve the open nature of the project, no participant is incentivized to develop its own unique and distinctive features.¹¹² In this way, the GPL framework can limit the chance that any technology will fragment into a range of different implementations. These centripetal incentives can also affect the institutional structures of collaboration. Projects that do not use the GPL-like copy-left licenses, for instance, may require stronger corporate and governance frameworks to produce the same collaborative investments.¹¹³

¹¹⁰ Croft, *supra* note 109, at 104 (The defensive termination provision of the Eco-Patent Commons “provides a significant advantage to pledging a patent . . . over donating it to the public . . . because pledgers are still able to exclude competitors or bad faith users from using their patents.”); Lemley & Shapiro, *supra* note 90, at 1156 (stating that “defensive suspension helps protect SSO members from holdup by non-members”).

¹¹¹ See Tsilas, *supra* note 19, at 99; see also JUSTUS BARON & DANIEL F. SPULBER, TECHNOLOGY STANDARDS AND STANDARDS ORGANIZATIONS: INTRODUCTION TO THE SEARLE CENTER DATABASE 20 (2015) (noting that provisions which condition licensing commitments on reciprocity are more frequent for royalty-free policies).

¹¹² ANDREW M. ST. LAURENT, UNDERSTANDING OPEN SOURCE AND FREE SOFTWARE LICENSING 173 (2004) (stating that the “GPL limits the likelihood of forks by preventing non-open development”); WEBER, *supra* note 61, at 181 (contrasting the GPL with more permissive licenses, where in the latter the “looseness of the license . . . has caused problems and dissension about what is legitimate behavior”); Greg R. Vetter, *The Collaborative Integrity of Open-Source Software*, 2004 UTAH L. REV. 563, 641 (noting that the permissive licensing of certain BSD Unix projects inhibited “inter-entity collaboration”). *But see* ST. LAURENT, *supra* at 33 (Fragmentation in BSD projects is “less a result of the dynamic of the license itself than it is of the complex social dynamic involved in large software projects.”).

¹¹³ See Bruce Kogut & Anca Metiu, *Open Source Software Development and Distributed Information*, 17 OXFORD REV. ECON. POL’Y 248, 257 (2001) (Linux prevents

In sum, royalty-free grants serve deliberate objectives. These frameworks are often structured to support commercial business models, and can also play an important part in shaping collaborative communities. The royalty-free commitment advances these goals not only through the surrender of the right to monetize the patent itself, but also through the various non-monetary requirements and obligations that surround the core royalty-free commitment. These associated non-monetary provisions focus the thrust of the commitment, protect it from being abused by competitors, and assist in mobilizing a collaborative community around the committed technology. Later sections of the Article examine the remedies available to a patentee for the breach of these non-monetary requirements.

II. LICENSING AND INJUNCTIONS

Patent license commitments can dramatically impact the range of remedies available to a patentee. The Patent Act permits (but does not require) courts to grant injunctions prohibiting infringers from using the patented technology.¹¹⁴ This right to an injunction is grounded in the recognition that patents, being a form of property, can grant their owners a right to exclude others from the use of the patented technology.¹¹⁵ Even so, a growing consensus of courts and

“balkanization” through the restrictions of the GPL license, while Apache, with its more permissive licensing, requires governance structures to attain the same.); Nathan Willis, *Permissive Licenses, Community, and Copyleft*, LWN (Oct. 14, 2015), <https://lwn.net/Articles/660428/> [<https://perma.cc/M353-GN6G>] (Open source projects using permissive licenses, such as the Apache 2.0 license, “are top-heavy with ‘governance’ structures,” while in projects using copyleft licenses “those structures are simply not needed.”); see also Barnett, *supra* note 91, at 1896 (presenting different commitment devices used by open source projects, and differentiating between the commitments resulting from licensing models and the commitments resulting from governance structures).

¹¹⁴ 35 U.S.C. § 283 (2012) (providing that courts “may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent”).

¹¹⁵ *Dawson Chem. Co. v. Rohm & Haas Co.*, 448 U.S. 176, 215 (1980) (noting that it is “the long-settled view that the essence of a patent grant is the right to exclude others from profiting by the patented invention”); *Hartford-Empire Co. v. United States*, 323 U.S. 386, 415 (1945) (“That a patent is property, protected against appropriation both by individuals and by government, has long been settled.”); *Carl Schenck, A.G. v. Nortron Corp.*, 713 F.2d 782, 786 n.3 (Fed. Cir. 1983) (“The patent right is but the right to exclude others, the very definition of ‘property.’”).

administrative agencies has restricted the availability of injunctions for patents indiscriminately licensed by their owners. These limitations have not been expressly applied to royalty-free (as opposed to FRAND) licensing commitments, though much of the logic in these decisions would facially dictate a similar approach. This Part follows the development of these curbs on injunctive relief and summarizes the legal and economic rationales for these limitations.

A. *eBay and its Progeny*

The 2006 Supreme Court decision in *eBay Inc. v. MercExchange L.L.C.*¹¹⁶ dramatically changed the patent remedies landscape. The patentee MercExchange was a start-up that, having failed to market its patented technology, began pursuing a commercial licensing strategy instead.¹¹⁷ MercExchange asserted that its patents covered eBay's "Buy it Now" feature, which allowed users to buy an auctioned product at a set price prior to the conclusion of the auction.¹¹⁸ eBay began discussions with MercExchange for the purchase of those patents, but the parties never came to an agreement.¹¹⁹ MercExchange then brought suit in federal court, asserting patent infringement by eBay, and a federal district court jury agreed.¹²⁰

Prior to 2006, the ordinary rule was that courts would almost automatically issue injunctions to plaintiffs that had proven infringement of their patent.¹²¹ Courts would generally presume that

¹¹⁶ 547 U.S. 388 (2006).

¹¹⁷ For background on MercExchange, and its commercial strategy and failures, see Ryan T. Holte, *Trolls or Great Inventors: Case Studies of Patent Assertion Entities*, 59 ST. LOUIS U. L.J. 1, 23–29 (2014).

¹¹⁸ Associated Press, *eBay Settles Patent Dispute Over 'Buy It Now' Feature*, N.Y. TIMES, Feb. 29, 2008, http://www.nytimes.com/2008/02/29/technology/29ebay.html?_r=0 [<https://perma.cc/5LYQ-WZJ2>].

¹¹⁹ See Holte, *supra* note 117, at 28–29.

¹²⁰ See *MercExchange, L.L.C. v. eBay, Inc.*, 275 F. Supp. 2d 695, 698 (E.D. Va. 2003).

¹²¹ Prior to *eBay*, the Federal Circuit recognized that a district court has the discretion whether to enter an injunction. See *eBay*, 547 U.S. at 394 (citing *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858, 865 (Fed. Cir. 1984)). At the same time, however, the Federal Circuit indicated that "an injunction should issue once infringement has been established unless there is a sufficient reason for denying it." *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1283 (Fed. Cir. 1988). According to the court, only limited reasons that were "sufficiently exceptional" could justify the "rare" case of not granting an injunction. *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1339 (Fed.

patent infringement resulted in “irreparable harm” to the patentee—harm that could not be rectified by money damages alone—and, as such, courts would routinely enjoin continued infringement.¹²² Even so, and notwithstanding a jury finding of infringement, the *eBay* district court refused to issue an injunction prohibiting eBay’s use of the patented technology.¹²³ The court held that MercExchange had failed to show that, absent an injunction, continued infringement of the patents by eBay would cause it “irreparable harm.”¹²⁴ In support of this holding, the district court pointed to the fact that MercExchange did not “practice its inventions” but rather existed “merely to license its patented technology to others.”¹²⁵ Moreover, the plaintiff had made “numerous comments to the media . . . that it did not seek to enjoin eBay but rather sought appropriate damages for the infringement.”¹²⁶ Given MercExchange’s business model, the district court held that money damages (without an injunction) would provide sufficient remedy for the infringement of its patents.¹²⁷

The Federal Circuit reversed on appeal.¹²⁸ Reiterating the “general rule” that “a permanent injunction will issue” in patent cases “once infringement and validity have been adjudged,”¹²⁹ the court held that the facts at hand were not “sufficiently exceptional”¹³⁰ to justify a departure from the ordinary rule. Injunctions, according to the court, were the “natural consequence of the right to exclude”¹³¹ granted by a patent, so the court held that MercEx-

Cir. 2005), *rev’d*, 547 U.S. 388 (2006). As such, the “general rule” in patent infringement cases was “that a permanent injunction will issue once infringement and validity have been adjudged.” *MercExchange*, 401 F.3d at 1339.

¹²² See *Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1148 (Fed. Cir. 2011) (describing the presumption of irreparable harm in pre-*eBay* patent cases). For a discussion of which kind of harms cannot be rectified by money damages, see David McGowan, *Irreparable Harm*, 14 LEWIS & CLARK L. REV. 577, 586–88 (2010).

¹²³ *MercExchange*, 275 F. Supp. 2d at 715.

¹²⁴ *Id.* at 712.

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ *Id.* at 715.

¹²⁸ *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1339 (Fed. Cir. 2005).

¹²⁹ *Id.* at 1338.

¹³⁰ *Id.* at 1339.

¹³¹ *Id.*

change should be entitled to an injunction no less than other patentees.

The Supreme Court overturned the decision of the Federal Circuit, holding that the almost automatic issuance of injunctions in patent cases was inconsistent with the statutory language of the Patent Act and “traditional equitable principles.”¹³² According to the Court, nothing in the patent context demanded that such principles be skirted in favor of injunctive relief.¹³³ Instead, the Court ruled that a patentee seeking an injunction must demonstrate the “traditional” four factors:

(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.¹³⁴

The Supreme Court criticized the holdings of both the appeals and district court as inconsistent with this four-factor test.¹³⁵ The appeals court, by insisting that almost all patent infringement inevitably caused “irreparable injury,” had construed the equitable standard too favorably for the patentee.¹³⁶ The district court, in assuming that a patentee’s willingness to license its technology produced a “categorical rule”¹³⁷ against injunctions, had construed the equitable standard too favorably for infringers.

Even as the Supreme Court held that “traditional equitable principles” provided the proper standard for determining whether injunctive relief was the proper remedy for infringement, it also implied that a patentee’s licensing strategy could, in many cases, affect the application of those principles. The Court identified two specific situations where a patentee’s licensing strategy was not inconsistent with the grant of an injunction. According to the

¹³² eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 392–93 (2006).

¹³³ *Id.*

¹³⁴ *Id.* at 393.

¹³⁵ *Id.*

¹³⁶ *Id.* at 393–94.

¹³⁷ *Id.* at 393.

Court, patentees “such as university researchers or self-made inventors, might reasonably prefer to license their patents, rather than undertake efforts to secure the financing necessary to bring their works to market themselves,”¹³⁸ and, as such, these specific categories of patentees may be eligible for injunctive relief under the appropriate equitable standard. By distinguishing these two relatively irregular fact patterns, the Court suggested that in many other situations a willingness to license may indeed be inconsistent with the grant of an injunction.¹³⁹ In particular, a concurring opinion by Justice Kennedy emphasized that injunctions may not be appropriate in situations “in which firms use patents . . . primarily for obtaining licensing fees,” since, in these circumstances, the injunction may be “employed as a bargaining tool to charge exorbitant fees.”¹⁴⁰

The cases that followed *eBay* further detailed the burden that patentees must satisfy in order to obtain injunctive relief.¹⁴¹ Courts have generally found that plaintiffs satisfy that burden when they demonstrate that the injury from ongoing infringement would be difficult to quantify in monetary terms.¹⁴² Injury that is difficult to measure could be the loss of market share or customers,¹⁴³ a reduc-

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 396 (Kennedy, J., concurring).

¹⁴¹ *See, e.g.,* Robert Bosch LLC v. Pylon Mfg. Corp., 659 F.3d 1142, 1149 (Fed. Cir. 2011) (clarifying that *eBay* “jettisoned the presumption of irreparable harm as it applies to determining the appropriateness of injunctive relief”).

¹⁴² *See* Apple Inc. v. Samsung Elecs. Co., 801 F.3d 1352, 1368 (Fed. Cir. 2015) (Reyna, J., concurring) (stating that “courts traditionally found infringement of intellectual property rights to be irreparable” since “damages are difficult to measure”); Douglas Dynamics, LLC v. Buyers Prods. Co., 717 F.3d 1336, 1344 (Fed. Cir. 2013) (holding that “[i]rreparable injury encompasses different types of losses that are often difficult to quantify”). *See generally* McGowan, *supra* note 122, at 578 (“Irreparable harm is that which cannot be compensated adequately with money damages.”).

¹⁴³ Apple, Inc. v. Samsung Elecs. Co., 877 F. Supp. 2d 838, 904 n.9 (N.D. Cal. 2012) (holding that “the incalculability of future lost market share supports a finding that monetary damages are an inadequate remedy”); Metso Minerals, Inc. v. Powerscreen Int’l Distrib. Ltd., 788 F. Supp. 2d 71, 74–75 (E.D.N.Y. 2011) (citing cases showing that “when a plaintiff can show that infringement caused a loss of value in its business that is difficult to quantify—such as market share, goodwill, or reputation—then the plaintiff is more likely to have been irreparably injured”); *see also* Robert Bosch, 659 F.3d at 1155 (“Bosch argues that it will continue to suffer irreparable harm due to lost market share, lost business opportunities, and price erosion unless Pylon is permanently enjoined.

tion in the price of patented technology,¹⁴⁴ or injury to a patentee's name recognition or reputation.¹⁴⁵ Courts have also found that infringement activities which undermine a patentee's entire business model constitute the kind of irreparable harm that would justify an injunction.¹⁴⁶ In all of these categories of harm, it could be extraordinarily challenging to reduce damages to a single monetary figure. As such, courts may determine that ex ante injunctive relief is more appropriate than a knotty ex post calculation of damages.¹⁴⁷

eBay warned against using a "categorical rule" that the licensing of patents precluded the grant of an injunction against the infringement of those patents. Indeed, injunctive relief remains avail-

According to Bosch, money damages alone cannot fully compensate Bosch for these harms. We agree.").

¹⁴⁴ *Robert Bosch*, 659 F.3d at 1155.

¹⁴⁵ *Douglas Dynamics*, 717 F.3d at 1344 (stating that "[i]rreparable injury encompasses different types of losses that are often difficult to quantify, including . . . erosion in reputation and brand distinction"); *AstraZeneca LP v. Apotex, Inc.*, 633 F.3d 1042, 1063 (Fed. Cir. 2010) (noting that harm to goodwill can be unquantifiable and, as such, constitute irreparable injury). See generally McGowan, *supra* note 122, at 578 (asserting that "[p]aradigm cases" of irreparable harm include "harm to reputation").

¹⁴⁶ *Harris Corp. v. Fed. Express Corp.*, No. 6:07-cv-1819-Orl-28KRS, 2011 U.S. Dist. LEXIS 96257, at *38 (M.D. Fla. Feb. 28, 2011) (finding irreparable harm by distinguishing plaintiff's calculated licensing activities from an entity that "routinely grants boilerplate licenses"); *ReedHycalog UK, Ltd. v. Diamond Innovations, Inc.*, No. 6:08-CV-325, 2010 U.S. Dist. LEXIS 83011, at *38 (E.D. Tex. Aug. 12, 2010) (noting that a failure to grant injunction would cause irreparable harm to plaintiff's business model of granting licenses in only a specific business segment); *Judkins v. HT Window Fashions Corp.*, 704 F. Supp. 2d 470, 477 (W.D. Pa. 2010) (granting an injunction because there would cause irreparable harm to plaintiff's existing licensing relationships); *Joyal Prods. v. Johnson Elec. North Am., Inc.*, No. 04-5172 (JAP), 2009 U.S. Dist. LEXIS 15531, at *29 (D.N.J. Feb. 27, 2009) (finding that an injunction was necessary to prevent irreparable harm to planned asset sale).

¹⁴⁷ In principle, courts are not inexperienced in the calculation of economic losses such as lost market share, so it can be difficult to understand why such injuries should be seen as "irreparable." See, e.g., Douglas Ellis et al., *The Economic Implications (and Uncertainties) of Obtaining Permanent Injunctive Relief After eBay v. MercExchange*, 17 FED. CIR. B.J. 437, 445 (2008) (questioning why courts have categorized "typical business losses" as irreparable harm); McGowan, *supra* note 122, at 588 (suggesting reasons why competitive harm may be seen as "irreparable"). See generally Steven D. Porter, Jr., *Post-eBay Economic Standards for Assessing Irreparable Harm*, 94 J. PAT. & TRADEMARK OFF. SOC'Y 250 (2012) (suggesting standards for determining when infringement harms may be quantified and, as such, injunctions should not issue). A few courts have indeed held that damages from lost sales can be quantified and, as such, should not be deemed irreparable harm. See, e.g., *IGT v. Bally Gaming Int'l. Inc.*, 675 F. Supp. 2d 487, 492 (D. Del. 2009) (finding that damages from lost sale and lost profits can be quantified).

able for many patentees under *eBay*—even for patentees that license their patents.¹⁴⁸ *eBay*, however, did significantly impact a particular category of licensing patentee: firms that indiscriminately grant access to their patented technology. Some patentees show a readiness to provide their technology to all willing licensees, and this undermines courts’ enthusiasm for enjoining specific third-party infringers. The next two sections consider two very different licensing models in which patentees provide broad, indiscriminate access to their technology, and show how *eBay* has acted in each case to limit the availability of injunctive relief.

B. Patent “Trolls”

Patent “trolls” are rarely able to satisfy the *eBay* standard.¹⁴⁹ The classic patent troll does not practice the patented technology.¹⁵⁰ Rather, the primary business model of a troll is to purchase

¹⁴⁸ See *Acumed LLC v. Stryker Corp.*, 551 F.3d 1323, 1328 (Fed. Cir. 2008) (“While the fact that a patentee has previously chosen to license the patent may indicate that a reasonable royalty does compensate for an infringement, that is but one factor for the district court to consider. The fact of the grant of previous licenses, the identity of the past licensees, the experience in the market since the licenses were granted, and the identity of the new infringer all may affect the district court’s discretionary decision concerning whether a reasonable royalty from an infringer constitutes damages adequate to compensate for the infringement.”). As such, research institutions that license their patents have been able to receive injunctions on the theory that the infringement caused irreparable harm to the institution’s academic competitiveness. See, e.g., *Commonwealth Sci. & Indus. Res. Org. v. Buffalo Tech. Inc.*, 492 F. Supp. 2d 600, 604–05 (E.D. Tex. 2007); see also FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 229 (2011) (“A patentee that licenses as part of a technology transfer program, such as a university or semiconductor design house, can suffer harm from infringement that is more akin to that suffered by a manufacturing patentee.”); Chien & Lemley, *supra* note 2, at 10 (finding that district courts have granted injunctions to 100% of universities and research institution patentees).

¹⁴⁹ Chien & Lemley, *supra* note 2, at 10 (showing that after *eBay* district courts only infrequently grant injunctions to non-practicing entities); see John M. Golden, *Patent Trolls and Patent Remedies*, 85 TEX. L. REV. 2111, 2113 (2007); Benjamin H. Diessel, Note, *Trolling for Trolls: The Pitfalls of the Emerging Market Competition Requirement for Permanent Injunctions in Patent Cases Post-eBay*, 106 MICH. L. REV. 305, 318 (2007) (reviewing post-*eBay* case law to find that courts denied injunctions to patentees that “sought to market their patent indirectly, by licensing them in exchange for royalties”).

¹⁵⁰ While acknowledging the difficulty in precisely defining the term “troll,” this Article uses that terminology as a useful shorthand for referring to certain patent activities. See, e.g., Lemley & Shapiro, *supra* note 6, at 2009 (“Defining a patent troll has proven a tricky business, but that does not mean the problem does not exist.”). The

patents and then assert those purchased rights against firms that produce the patented goods or services.¹⁵¹ Trolls are generally not selective about the firms to which they grant patent licenses. Indeed, from the perspective of the classic troll, every additional licensee contributes to the success of the business model by producing additional licensing revenue.¹⁵² Justice Kennedy, concurring in *eBay*, pointedly distinguished such entities from other patent holders engaged in “producing and selling goods.”¹⁵³ Trolls, he asserted, often employ injunctions as a “bargaining tool to charge exorbitant fees.”¹⁵⁴ Courts, he admonished, should take heed of such differences when deciding whether to grant injunctions against infringement.¹⁵⁵

Scholars fiercely disagreed over the extent of the patent troll “problem,”¹⁵⁶ and whether trolls should be entitled to injunctive relief. Some commentators defended the *eBay* decision against “rent-seeking” trolls.¹⁵⁷ Other scholars focused on the challenges posed by trolls in specific circumstances, such as when trolls brought suits against multi-component products that included both infringing and non-infringing parts.¹⁵⁸ In these situations, patent-

“troll” epithet reflects popular disdain of the troll’s business model. Other more neutral labels for such entities include “patent assertion entities” and “non-practicing entities.” See *In re Packard*, 751 F.3d 1307, 1325 (Fed. Cir. 2014); see also FED. TRADE COMM’N, *supra* note 148, 220 n.21 (using the term “patent assertion entity . . . to refer to firms whose business model primarily focuses on purchasing and asserting patents”).

¹⁵¹ Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2217, 2118, 2141–42 (2013).

¹⁵² See, e.g., *Ricoh Co. v. Quanta Comput., Inc.*, No. 06-cv-462-bbc, 2010 U.S. Dist. LEXIS 38220, at *5–6 (W.D. Wis. Apr. 19, 2010) (noting that plaintiff non-practicing entity had issued licenses to all other industry participants).

¹⁵³ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 396 (2008) (Kennedy, J., concurring).

¹⁵⁴ *Id.*

¹⁵⁵ *Id.* at 397.

¹⁵⁶ See, e.g., Lemley & Melamed, *supra* note 151, at 2129 (asking whether “[t]rolls are really the problem?”).

¹⁵⁷ Robert P. Merges, *The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform*, 24 BERKELEY TECH. L.J. 1583, 1610 (2009).

¹⁵⁸ Lemley & Shapiro, *supra* note 6, at 2009 (“Our analysis strongly supports the conclusion that holdup is of particular concern when the patent itself covers only a small piece of the product, as is common in the industries in which so-called patent trolls predominate.”); see also DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW COURTS CAN SOLVE IT* 139 (2009).

owning trolls would “hold-up” innovative firms in order to extract money that was not “a legitimate part of the value of a patent,” but rather reflected “the inability of the accused infringer to separate the infringing component from the noninfringing ones after the fact.”¹⁵⁹ On the other hand, some commentators criticized how courts “discriminated” against trolls by refusing to enjoin the infringement of their patents.¹⁶⁰ According to this view, the denial of injunctive relief for certain patent holders would “discourage innovation, patenting, or patent ownership.”¹⁶¹

Regardless of these theoretical disputes, cases in the wake of *eBay* substantially limited the availability of injunctive relief for patent trolls.¹⁶² Considering such entities do not actually produce goods or services, they have difficulty showing that infringement of their rights results in the irreparable harm that *eBay* demanded for the granting of injunctions.¹⁶³ Trolls cannot demonstrate that continued infringement will cause the loss of customers or market share that they do not seek, or will erode the prices of products that they do not manufacture.¹⁶⁴ In other words, patent trolls have difficulty demonstrating their need to “exclude” infringers from markets that they are in any event not commercializing. Moreover, since patent trolls indiscriminately license their patents for money, they cannot argue that monetary damages would not adequately

¹⁵⁹ Lemley & Shapiro, *supra* note 6, at 2009–10; *see also* Chien & Lemley, *supra* note 2, at 6 (noting the harms caused by trolls in specific scenarios, such as with multicomponent products, interoperability standards, or where infringement suits reduce competition); Vincenzo Denicolo et al., *Revisiting Injunctive Relief: Interpreting eBay in High-Tech Industries with Non-Practicing Patent Holders*, 4 J. COMPETITION L. & ECON. 571, 590–91 (2008) (asserting that holdup problems occur only in specific circumstances, and that the assumption of “inadvertent infringement” of patented technology “is crucial to the holdup result”).

¹⁶⁰ Golden, *supra* note 149, at 2160.

¹⁶¹ *Id.* at 2156.

¹⁶² *See* sources cited *supra* note 149.

¹⁶³ *See, e.g.*, *Cardsoft, Inc. v. Verifone Holdings, Inc.*, No. 2:08-CV-98-RSP, 2013 U.S. Dist. LEXIS 155256, at *5 (E.D. Tex. Oct. 30, 2013) (Patentee could not show irreparable harm since it “long ago stopped developing its own software products.”); *Laserdynamics, Inc. v. Quanta Comput., Inc.*, No. 2:06-CV-348-TJW, 2010 U.S. Dist. LEXIS 61645, at *7 (E.D. Tex. June 22, 2010) (Plaintiff patentee never used the infringed patent “to develop a product. There has been no loss of market share, lost profits, and potential revenue to LaserDynamics, and there will likely be none in the future. Further, there is no concern of loss of brand name recognition and goodwill.”).

¹⁶⁴ *Laserdynamics*, 2010 U.S. Dist. LEXIS 61645, at *7.

compensate them for the infringement of their rights.¹⁶⁵ Even more so—a troll’s regular licensing transactions provide courts with an easy way of quantifying what level of royalties could provide satisfactory compensation for infringement.

C. FRAND Commitments

eBay has also limited the availability of injunctions for FRAND-committed patents. At base, a patentee that makes a FRAND commitment promises to provide third parties with access to its protected technology at reasonable terms. If the actions of a patent troll demonstrate an inclination to make technology available in exchange for compensation, a FRAND commitment puts such readiness down in writing.¹⁶⁶ This Section reviews the place and significance of FRAND promises, and traces the developing jurisprudence that limits the remedies available for patents encumbered by such commitments.¹⁶⁷

¹⁶⁵ *Xpertuniverse, Inc. v. Cisco Sys.*, No. 09-157-RGA, 2013 U.S. Dist. LEXIS 164935, at *46 (D. Del. Nov. 20, 2013) (“[M]oney damages are rarely inadequate for a patentholder that is willing to forego its exclusive right for some manner of compensation.”); *Laserdynamics*, 2010 U.S. Dist. LEXIS 61645, at *8 (Patentee’s “extensive licensing history . . . demonstrates that money damages have been and will continue to be sufficient to remedy any infringement.”); *Hynix Semiconductor Inc. v. Rambus Inc.*, 609 F. Supp. 2d 951, 986 (N.D. Cal. 2009) (“This historical practice [of licensing its patents] suggests that Rambus is primarily concerned with monetary compensation for use of its patented technology”); see also Ted Sichelman, *Purging Patent Law of “Private Law” Remedies*, 92 TEX. L. REV. 517, 521 (2014) (noting that “because an NPE would by definition license its patents, a liability rule providing damages on a forward-looking basis . . . would return the NPE exactly to that state of the world that would have existed but for the infringement”).

¹⁶⁶ See also Lemley & Melamed, *supra* note 151, at 2141 & n.108 (noting that both patent trolls and FRAND-committed have difficulty showing that infringement results in irreparable harm).

¹⁶⁷ Unlike the federal courts, the standard for obtaining an injunction-like “exclusion order” from the International Trade Commission (“ITC”) is not linked to the *eBay* standard. See *Spansion, Inc. v. Int’l Trade Comm’n*, 629 F.3d 1331, 1359 (Fed. Cir. 2010) (“Given the different statutory underpinnings . . . this court holds that *eBay* does not apply to Commission remedy determinations.”). As such, a FRAND-committed patentee may have greater chance to obtain an injunction-like remedy at the ITC than at the federal courts. See *Kesan & Hayes*, *supra* note 20, at 311. In contrast, the Federal Trade Commission (“FTC”) has investigated entities for seeking injunctions on FRAND-encumbered patents, and such entities have entered into consent orders with the FTC, limiting their ability to seek such injunctions. See, e.g., Elyse Dorsey & Matthew R. McGuire, *How the Google Consent Order Alters the Process and Outcomes of FRAND Bargaining*, 20 GEO. MASON L. REV. 979, 979 (2013). The standards used by

FRAND commitments arise most prominently in the context of the standard-setting process. Technical standards allow devices in our connected world to interoperate. For example, the 802.11 standards form the basis for Wi-Fi networking by describing how devices can connect wirelessly.¹⁶⁸ Adoption of the common standard allows manufacturers to be sure that their devices can communicate wirelessly with other products and platforms. Such standards provide value to society by facilitating interoperability as well as encouraging innovation and competition on the shared platform.¹⁶⁹

Proprietary technology incorporated in a standard can be a valuable asset, given that implementation of a popular standard will also, by design, require the broad adoption of the included technology. Patent rights covering the technology in a standard are often described as “standard essential patents” (“SEPs”), because use of the patented technology is essential for implementation of the standard. Participants in the standard-setting process are typically required by standards organizations to commit to license their SEPs on FRAND terms.¹⁷⁰ FRAND commitments encourage adoption of the standard by providing assurance that any technology in the standard—even the technology protected by proprietary rights—will be available for licensing on reasonable terms. At the same time, the FRAND structure also allows patent holders to secure “fair and reasonable” compensation for their investments in innovative technology.¹⁷¹ The FRAND pledge, however, provides

administrative agencies such as the ITC and FTC in examining the propriety of seeking injunction-like remedies for FRAND-encumbered patents are beyond the scope of this Article.

¹⁶⁸ Recent litigation between Microsoft and Motorola involved the 802.11 standards. *See infra* text accompanying notes 188–90.

¹⁶⁹ *See* U.S. DEP’T OF JUSTICE & U.S. PATENT & TRADEMARK OFFICE, POLICY STATEMENT ON REMEDIES FOR STANDARDS-ESSENTIAL PATENTS SUBJECT TO VOLUNTARY F/RAND COMMITMENTS 3–4 (2013), <http://www.justice.gov/atr/public/guidelines/290994.pdf> [<https://perma.cc/CG8B-69ZH>] (“Interoperability standards have paved the way for moving many important innovations into the marketplace, including the complex communications networks and sophisticated mobile computing devices that are hallmarks of the modern age.”); Lemley, *supra* note 77, at 1896 (discussing benefits of standards).

¹⁷⁰ *See generally* Lemley, *supra* note 77, at 1906.

¹⁷¹ *See, e.g.*, Damien Geradin, *The Meaning of “Fair and Reasonable” in the Context of Third-Party Determination of FRAND Terms*, 21 GEO. MASON L. REV. 919, 922 (2014); Lemley & Shapiro, *supra* note 90, at 1137.

only a vague commitment to allow access at undetermined rates, and market participants are typically left to themselves to hammer out the details.¹⁷² Disputes can arise when firms cannot find agree on what constitutes FRAND licensing terms.

Scholars have long tried to excavate more precise meaning out of the amorphous FRAND commitment, including trying to understand whether a FRAND-committed patentee can seek an injunction if the parties cannot agree on appropriate licensing terms. Some commentators have asserted that FRAND commitments should preclude the issuance of an injunction. According to this position, the availability of injunctions would allow patentees to “hold-up” device manufacturers—in other words, to demand exorbitant fees for the use of patented technology after manufacturers have already made significant investments in incorporating the standardized technology.¹⁷³ Other scholars have defended the availability of injunctive relief for FRAND-encumbered patents by pointing to the typically indeterminate language of FRAND commitments, which frequently do not include express prohibitions on seeking injunctions.¹⁷⁴ Opponents of restricting injunctions for FRAND-committed patents also argue that such limitations raise the possibility of “reverse hold-up”—where the user of patented technology feels comfortable demanding unreasonably low royalty

¹⁷² Most standard-setting organizations disclaim any role in determining the details of a FRAND license. See Lemley, *supra* note 77, at 1906; see also Lemley & Shapiro, *supra* note 90, at 1137 (stating that litigation over FRAND royalties demonstrates the “ambiguities and omissions in the FRAND system”).

¹⁷³ See, e.g., Joseph Farrell et al., *Standard-Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603, 638 (2007) (“Our interpretation implies that a patent holder that has made a commitment to license on a FRAND basis should not be able to get (or threaten) an injunction against use of the technology to comply with the standard.”); Lemley, *supra* note 77, at 1967 (Patentees committing to FRAND obligations “generally are agreeing to give up their right to injunctive relief and extraordinary damages.”); Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 358 (2007) (The “core meaning of the RAND promise” is “an irrevocable waiver of injunctive relief and other extraordinary remedies.”).

¹⁷⁴ See, e.g., Damien Geradin & Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101, 118–19 (2007); Joshua D. Wright, *SSOs, FRAND, and Antitrust: Lessons from the Economics of Incomplete Contracts*, 21 GEO. MASON L. REV. 791, 806 (2014) (“No maxim of contract interpretation requires” that FRAND commitments be understood to prohibit injunctive relief.).

rates because courts will not back up the patentee with an injunction.¹⁷⁵

Notwithstanding these academic disagreements, a developing jurisprudence sees FRAND commitments as incompatible with the availability of injunctive relief. The first judicial pronouncements on this issue came in the case of *Apple, Inc. v. Motorola, Inc.*¹⁷⁶ The dispute between the two companies began in October 2010, with Motorola filing a complaint against Apple with the International Trade Commission, alleging infringement of six patents.¹⁷⁷ The dispute descended into a series of claims and counterclaims, with Motorola eventually asserting that Apple infringed a patent for allocating channels in a wireless communications system. Motorola had previously asserted that this specific patent was essential for implementing cellular systems, and had pledged to license the patent on FRAND terms.¹⁷⁸ Notwithstanding this FRAND commitment, however, Motorola sought to enjoin Apple's use of the patented cellular technology.

The district court, with Judge Poser sitting by designation, held that Motorola's claim for injunctive relief was inconsistent with its FRAND commitment: "By committing to license its patents on FRAND terms, Motorola committed to license the 898 [patent] to anyone willing to pay a FRAND royalty and thus implicitly acknowledged that a royalty is adequate compensation for a license to use that patent."¹⁷⁹ Moreover, Judge Posner held that Motorola would not be able to obtain injunctive relief even if Apple (as Motorola had asserted) was not willing to negotiate a license agree-

¹⁷⁵ Wright, *supra* note 174, at 807 ("[W]eakening the availability of injunctive relief for infringement . . . may increase the probability of reverse holdup and weaken any incentives implementers have to engage in good faith negotiations with the patent holder.").

¹⁷⁶ 869 F. Supp. 2d 901 (N.D. Ill. 2012), *aff'd in part, rev'd in part*, 757 F.3d 1286 (Fed. Cir. 2014).

¹⁷⁷ See Florian Mueller, *Apple vs. Motorola: Now 42 Patents-in-Suit (24 Apple and 18 Motorola Patents)*, FOSS PATENTS (Dec. 3, 2010), <http://www.fosspateints.com/2010/12/apple-vs-motorola-now-42-patents-in.html> [https://perma.cc/B72R-HAWH] (recapping the early history of the disputes).

¹⁷⁸ *Apple*, 869 F. Supp. 2d at 911-12. Specifically, Motorola has stated that the patent was essential for implementing the Universal Mobile Telecommunications Standard ("UMTS"). *Id.*

¹⁷⁹ *Id.* at 914.

ment in good faith: “Motorola agreed to license its standards-essential patents on FRAND terms as a quid pro quo for their being declared essential to the standard. . . . It does not claim to have conditioned agreement on prospective licensees’ making counteroffers in license negotiations.”¹⁸⁰ Judge Posner’s decision was grounded in an understanding of the economic effect of the FRAND license commitment. According to the court (approvingly quoting a Federal Trade Commission policy statement), manufacturers are essentially “locked-in to practicing the standard.”¹⁸¹ Providing injunctive relief on FRAND patents that cover the standard would allow patentees to leverage the manufacturer’s “high switching costs” in order to obtain “unreasonable licensing terms.”¹⁸²

The Federal Circuit affirmed the district court’s decision not to grant injunctive relief, though with different reasoning. According to the Federal Circuit, there should be no “separate rule or analytical framework for addressing injunctions for FRAND-committed patents.”¹⁸³ Rather, the determination of whether to grant an injunction was always to be measured under the *eBay* standard. Under *eBay*, the court held, FRAND patentees could have difficulty establishing that infringement caused irreparable harm: Motorola’s many license agreements for the infringed FRAND patent showed that “money damages are adequate to fully compensate Motorola for any infringement.”¹⁸⁴ Moreover, Motorola had licensed the patent to a large number of industry participants, and could not provide evidence that adding one additional user (i.e., Apple) would cause Motorola irreparable harm.¹⁸⁵ In fact, according to the court, “Motorola has agreed to add as many market participants as are willing to pay a FRAND royalty,”¹⁸⁶ thus showing that a monetary FRAND royalty would indeed compensate Motorola for Apple’s use of the patent technology. As such, the court affirmed that the

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1331 (Fed. Cir. 2014), *overruled on other grounds by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015).

¹⁸⁴ *Id.* at 1332.

¹⁸⁵ *Id.*

¹⁸⁶ *Id.*

FRAND commitment precluded Motorola from obtaining injunctive relief in these circumstances.¹⁸⁷

The concurrent case of *Microsoft Corp. v. Motorola, Inc.*¹⁸⁸ provides additional clarity concerning the unlikelihood of obtaining an injunction for the infringement of FRAND-encumbered patents.¹⁸⁹ Microsoft's Windows 7 operating system incorporated H.264 technology, a widely used standard for video compression.¹⁹⁰ Motorola owned certain patents that it had previously declared were essential to the implementation of the H.264 standard, and Motorola had declared that it would license these patents "to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions."¹⁹¹ Microsoft sued Motorola for allegedly breaching this commitment to license the patent under FRAND terms, and Motorola's counterclaims included a request for an injunction against the Windows 7 operating system for infringement of the patents.¹⁹²

The district court reviewed Motorola's claims for an injunction under *eBay*. The court concluded that Motorola could not demonstrate the irreparable harm required by *eBay* to obtain an injunction.¹⁹³ By making the FRAND commitment, Motorola was obligated to license the patents under FRAND terms to "any and all implementers of the H.264"¹⁹⁴ standard. The court stood ready to determine the appropriate FRAND royalty and, according to Motorola's own statements, that court-determined royalty would provide Motorola with an adequate remedy for Microsoft's use of the patented technology. On appeal, the Ninth Circuit agreed that claims for injunctions for FRAND-committed patents should be evaluated under *eBay*—a FRAND commitment would not automatically exclude the granting of injunctive relief, but FRAND-

¹⁸⁷ *Id.*

¹⁸⁸ No. C10-1823JLR, 2012 U.S. Dist. LEXIS 170587 (W.D. Wash. Nov. 29, 2012), *aff'd*, 795 F.3d 1024 (9th Cir. 2015).

¹⁸⁹ The case uses the RAND (rather than FRAND) terminology, but this Article refers to Motorola's FRAND commitments for purposes of internal consistency.

¹⁹⁰ *Microsoft*, 2012 U.S. Dist. LEXIS 170587, at *18-19.

¹⁹¹ *Id.* at *15.

¹⁹² *Id.* at *17-19.

¹⁹³ *Id.* at *26.

¹⁹⁴ *Id.* at *28 n.9.

committed patentees would find it difficult to show that infringement caused the requisite irreparable harm.¹⁹⁵

In short, courts have turned to the *eBay* analysis in determining the availability of injunctions for patent trolls and FRAND-encumbered patents. In both situations, patentees have difficulty satisfying *eBay*'s demands that injunctions will only issue upon a showing of irreparable harm. Both categories of patent owners have provided almost indiscriminate access to their proprietary rights in exchange for monetary compensation and, as such, find it challenging to demonstrate how the continued infringement of one additional defendant will bring irreparable ruin upon them. The following Part examines the applicability of *eBay* to royalty-free commitments and questions whether *eBay* provides a coherent framework for analysis in that context.

III. THE REMEDIES PUZZLE

Patentees that make royalty-free commitments do not intend to relinquish all of their rights under the patent. First, the scope of royalty-free commitments is typically limited to certain specifications, granting no rights outside of that scope.¹⁹⁶ In addition, royalty-free commitments are ordinarily flanked by non-monetary conditions, such as the hanging sword of defensive termination or a requirement to provide the shield of a reciprocal license.¹⁹⁷ Infringers that do not satisfy these demands should not be eligible for a license under the literal terms of the royalty-free licensing commitment. What remedies are open to a patentee that wishes to enforce these requirements?

The question of remedies presents the central puzzle of the royalty-free commitment: The patentee has waived its right to exclude third parties, but has waived that right only in exchange for non-monetary obligations that can be exceedingly difficult to value. On the one hand, by making that indiscriminate license commit-

¹⁹⁵ *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1046 (9th Cir. 2015). The Ninth Circuit expressly stated that it agreed with the decision of the Federal Circuit in *Apple v. Motorola. Id.* at 1048 n.19.

¹⁹⁶ *See supra* text accompanying notes 95–98.

¹⁹⁷ *See supra* text accompanying notes 99–102.

ment, the patentee demonstrates that it is not interested in using the patent to exclude competitors, making it difficult to show that any particular unauthorized use of the patented technology would result in the irreparable harm that is a doctrinal prerequisite for granting injunctive relief. On the other hand, the patentee seeks consideration that may be impossible for courts to quantify in terms of a money amount, and the loss of which may not be feasible to remedy except through the grant of injunctive relief.

Both sides of this doctrinal coin come up in the cases following *eBay*. In those cases, the doctrines worked together to provide productive guidance in assessing whether patentees should be entitled to injunctive relief in a wide range of situations. Patentees that granted indiscriminate rights generally did so for monetary compensation, demonstrating both that the patent holder was not using the patent to exclude competitors, and that it could be compensated with money damages. The zero-rate commitment, however, presents a situation where these doctrines diverge in two contradictory directions. In other words, once a patentee has provided a royalty-free public licensing commitment, the *eBay* line of cases advances strong arguments why that patentee should not be entitled to an injunction to protect against infringement, but at the same time also shows why injunctive relief may be essential to guarding the interests of the patentee. This Part follows both sets of tracks, demonstrating how the two paths lead to conflicting conclusions.

A. Against Injunctions

Under *eBay*, courts have hesitated to grant injunctions to firms with a business model of indiscriminately licensing their patents. By making their technology available to infringers, these patentees show courts that the financial rewards of the licensing program provide adequate compensation for the infringement of the patents. Specifically, the operations of patent trolls and the content of the FRAND commitments provide strong evidence that a monetary royalty provides the patentee with adequate compensation, and that a court-issued injunction is not necessary. Moreover, the troll-owned or FRAND-committed patent may already be in use by a not inconsiderable number of firms, each paying a negotiated royal-

ty. Under such circumstances, where the patented technology is already in broad use, it will be difficult for a patentee to show in court that the use of the patent by an additional firm would cause the irreparable injury necessary for obtaining injunctive relief.¹⁹⁸

These doctrinal considerations apply equally to a patentee that has provided a royalty-free commitment. By making that commitment, the patentee shows that it is not interested in brandishing the patent to exclude competitors from the market.¹⁹⁹ Instead, the commitment evidences a clear policy of licensing the patents on an indiscriminate basis, even to the extent of making that policy evident under the uniform terms of an open source license or other standardized patent licensing agreement. As such, under *eBay*, the zero-rate patentee has renounced its right to “exclude,” and should be no more entitled to an injunction than a patent troll or a FRAND-committed patentee. Of course, the infringer may not be hewing to the literal terms of the license commitment—either by using the patented technology outside of the licensed scope or without providing the required reciprocal rights—but under *eBay* and its progeny a patentee will be hard pressed to show that such

¹⁹⁸ See *supra* text accompanying note 186–87.

¹⁹⁹ Many courts following *eBay* have held that a plaintiff patentee’s licensing activity shows that it is not using the patent to “exclude” competitors and, conversely, that a refusal to license demonstrates that the patent is being used to “exclude.” See, e.g., *Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d 1336, 1345 (Fed. Cir. 2013) (Patentee “had never licensed the infringing patents, and intentionally chose not to, so that it could maintain market exclusivity.”); *FenF, LLC v. SmartThingz, Inc.*, No. 12-cv-14770, 2014 U.S. Dist. LEXIS 51009, at *8 (E.D. Mich. Apr. 14, 2014), *rev’d on other grounds*, *FenF, LLC v. SmartThingz, Inc.*, 601 Fed. Appx. 950 (Fed. Cir. 2015) (Patentee “made a business decision to try and retain market exclusivity for products covered by the . . . patent and thus to not license its use” and infringement diminished patentee’s “ability to exclude others from practicing its patent despite its decision to retain market exclusivity.”); *Arlington Indus. v. Bridgeport Fittings, Inc.*, No. 3:06-CV-1105, 2011 U.S. Dist. LEXIS 77592, at *30 (M.D. Pa. July 18, 2011) (finding the showing of irreparable harm was bolstered because plaintiff “strategically declin[ed] to license the patent on its quick-connect device and, instead, exploit[ed] its monopoly to exclude potential rivals”); *Johnson & Johnson Vision Care, Inc. v. CIBA Vision Corp.*, 712 F. Supp. 2d 1285, 1289 (M.D. Fla. 2010) (Patentee was “willing to share [the patent rights] . . . with so many of its competitors,” which was inconsistent with its “assertion that only enforcement of its right to exclude . . . will redress the harm” suffered from infringement.); see also *High Tech Med. Instrumentation, Inc. v. New Image Indus.*, 49 F.3d 1551, 1557 (Fed. Cir. 1995) (holding that licensing is “incompatible with the emphasis on the right to exclude that is the basis for the presumption” of irreparable harm from infringement).

non-compliance causes “irreparable injury.” Certainly, the patentee cannot show that it has lost sales of, or been forced to accept lower prices for, technology that is in any event provided at no charge.²⁰⁰ It will be similarly challenging to demonstrate that the patentee’s reputation is irreparably harmed by the unauthorized use of otherwise free and broadly available technology.²⁰¹ Moreover, though the infringer may breach its obligations of reciprocity by bringing an infringement suit against the patentee, courts have been clear that the (easily measurable) costs of defending such suits would not constitute irreparable injury.²⁰² In sum, as the Federal Circuit pronounced with regard to FRAND-encumbered patents, it is difficult to see how “adding one more user”²⁰³ of royalty-free and widely used technology could result in irreparable injury to the patentee.

Commentators have noted the problems of “holdup” that could occur were courts to grant injunctive relief for the infringement of troll-owned or standard essential patents.²⁰⁴ In these situations, the patentee may be able to extort firms into paying royalties in excess of the value of the patented technology.²⁰⁵ Such concerns are equally present in the context of the royalty-free commitment. While a patentee making a royalty-free commitment cannot extract holdup value in the form of monetary payment—the zero-rate royalty precluding financial reward—it could extort non-monetary compensation such as far-reaching reciprocal licensing commit-

²⁰⁰ See cases cited *supra* note 143 (holding that lost sales and price erosion can constitute irreparable harm); see also *Cordance Corp. v. Amazon.com, Inc.*, 730 F. Supp. 2d 333, 341 (D. Del. 2010) (Plaintiff granted broad royalty-free licenses “in order to create an open [I]nternet standard necessary for widespread adoption” but the “decision to grant a free license to anyone willing to use its technology supports this court’s refusal to grant injunctive relief in defense of . . . [patentee’s] exclusive right to use such technology.”).

²⁰¹ See cases cited *supra* note 145 (holding that damage to reputation can constitute irreparable harm).

²⁰² See *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1337 (Fed. Cir. 2012) (holding that litigation costs “are not an irreparable harm in the injunction calculus”); *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2012 U.S. Dist. LEXIS 170587, at *28 n.9 (W.D. Wash. Nov. 30, 2012), *aff’d*, 795 F.3d 1024 (9th Cir. 2015) (stating that “easily measurable litigation costs to enforce one’s rights cannot constitute irreparable harm”).

²⁰³ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1332 (Fed. Cir. 2014).

²⁰⁴ See *supra* text accompanying notes 158–59, 173.

²⁰⁵ *Id.*

ments.²⁰⁶ Indeed, the question of whether a reciprocal commitment is unreasonable could be devilishly hard to answer, as it may require the examination, valuation, and comparison of both the intellectual property rights granted by the patentee and the rights withheld by the infringer.²⁰⁷

Given the difficulty of establishing irreparable harm and the potential for holdup, court-awarded monetary relief could constitute a more sensible remedy for the infringement of zero-rate encumbered patents. Indeed, courts are well-experienced in using a broad range of factors to calculate the compensation due to a patentee injured by infringement.²⁰⁸ While the patentee has chosen in certain circumstances to provide the patent under royalty-free terms, this does not mean that courts must impose this zero-rate valuation in all situations so as to preclude the patentee from receiving appropriate compensation.²⁰⁹ Courts can employ standard techniques to calculate suitable monetary damages, even when infringers refuse to abide by the non-financial aspects of a license.

²⁰⁶ Commentators and regulatory bodies have in other contexts specifically pointed to the problem of overly expansive reciprocal commitments. See sources cited and discussion *supra* note 101; see also ANTITRUST/IP GUIDELINES, *supra* note 99, § 5.6 (noting possible antitrust concerns with “grantback” licensing provisions).

²⁰⁷ See Kuhn et al., *supra* note 101, at 4 (arguing that the determination of whether “complex package of cross-licenses satisfies F/RAND is difficult for a third party”).

²⁰⁸ In calculating the “reasonable royalties” payable by an infringer, courts will weigh a list of fifteen factors, referred to as the *Georgia-Pacific* factors after the case in which they were first enumerated. *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1119–20 (S.D.N.Y. 1970), *modified and aff’d*, 446 F.2d 295 (2d Cir. 1971). The Federal Circuit has endorsed the use of the *Georgia-Pacific* factors in calculating reasonable royalties. See, e.g., *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 60 n.2 (Fed. Cir. 2012).

²⁰⁹ The Federal Circuit has cautioned that, when using previously negotiated license agreements to infer a reasonable royalty, a patentee must show that these license agreements are “comparable.” See, e.g., *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1329 (Fed. Cir. 2009) (Patentee “had the burden to prove that the licenses were sufficiently comparable to support the lump-sum damages award.”). Indeed, in determining whether a license agreement is comparable for purposes of calculating a FRAND royalty, the Federal Circuit has held that expert testimony must speak to all “distinguishing facts,” including any “cross-licensing terms.” See, e.g., *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1227 (Fed. Cir. 2014).

B. For Injunctions

Under *eBay*, courts have granted injunctions when damages to the patentee from ongoing infringement become difficult to value.²¹⁰ For instance, courts provide injunctive relief when the patentee demonstrates that infringement will result in the loss of market share or customers or a reduction in the price of proprietary technology.²¹¹ Courts and commentators have similarly focused on the difficulty in measuring the harm that ongoing infringement can cause to a patentee's reputation.²¹² In all of these situations, the problems of quantifying damages to the patentee in monetary terms have pushed courts toward providing injunctive relief.

In the same sense, the non-monetary obligations that surround the royalty-free commitment often serve to protect important commercial and community interests, and translating the loss of these protections into a cash damage award could prove challenging. A central motivation for making a royalty-free commitment may be to encourage the sale of interoperable devices.²¹³ Allowing infringers to use the patent beyond the limited scope of interoperability could sandbag the impetus for providing the commitment in the first place. Moreover, the limited scope of the commitment, by strictly confining the situations in which the patent is provided royalty-free, can be instrumental in encouraging patentees to participate in a royalty-free standard or in open source development.²¹⁴ As such, a failure to police the boundaries between the authorized and unauthorized scope of the royalty-free commitment

²¹⁰ See sources cited *supra* note 142. Courts after *eBay* have frequently emphasized how the difficulty of calculating monetary damages weighs in favor of providing injunctive relief. See, e.g., *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 862 (Fed. Cir. 2010) ("The loss associated with these effects is particularly difficult to quantify. Difficulty in estimating monetary damages is evidence that remedies at law are inadequate."); *Versata Software, Inc. v. SAP Am., Inc.*, No. 2:07-CV-153 CE, 2011 U.S. Dist. LEXIS 102267, at *11 (E.D. Tex. Sept. 9, 2011) ("[T]he inability to calculate Versata's future loss with reasonable precision makes legal remedies inadequate in this case."); *MGM Well Servs., Inc. v. Mega Lift Sys., LLC*, 505 F. Supp. 2d 359, 379 (S.D. Tex. 2007) ("Monetary damages are not adequate to compensate MGM for the continued loss of the exclusive rights under the [patent]. Future damages cannot be readily calculated at this point.").

²¹¹ See cases cited *supra* note 143.

²¹² See sources cited *supra* note 145.

²¹³ See *supra* text accompanying notes 88–93.

²¹⁴ See *supra* text accompanying notes 106–08.

could undercut the main business strategies driving such commitments. Courts would be hard-pressed to value the harms caused by such infringement with the core business models of the patentee.²¹⁵

Other non-monetary obligations, such as reciprocal and defensive provisions, aim to discourage infringement claims and ensure patentees' freedom to develop their products.²¹⁶ Courts may be able to put a price tag on the specific costs of litigation to defend against the claims of an infringer that flouts these provisions.²¹⁷ But the costs of infringement suits go beyond the simple costs of litigation, and courts may find it "exceedingly difficult" to put a price on the drag to a patentee's business caused by aggressively asserted claims of infringement.²¹⁸ Moreover, such non-monetary provisions may aim to encourage fence-sitting patentees to join the collaborative effort.²¹⁹ Failure to enforce these commitments through injunctive relief could undermine the collaborative undertaking as a whole, and the resulting damage could be extraordinarily difficult to value. How could courts put a price on the damages caused to a collaborative effort by patentees who, seeing how joining the collaboration would cripple their ability to enforce their property rights, decide not to join in promoting the standard at all?

Moreover, compensating spurned patentees with monetary payments, rather than an injunction, ignores the objectives of the patentee in making the royalty-free commitment in the first place. In the same way that a patentee making a FRAND commitment "strongly suggest[s] that money damages are adequate to fully compensate"²²⁰ it for relinquishing the right to exclude, a patentee making a royalty-free commitment signals that it is not at all inter-

²¹⁵ See cases cited *supra* note 146 (showing that courts grant injunctive relief where infringement undermines the business model of the patentee).

²¹⁶ See *supra* text accompanying notes 99–102.

²¹⁷ See *supra* text accompanying note 202.

²¹⁸ See *Jaffe v. Samsung Elecs. Co.*, 737 F.3d 14, 30–31 (4th Cir. 2013) (discussing the difficulty in quantifying the monetary exposure from the termination of cross licenses in the semiconductor industry); Rev. Proc. 2007-23, 2007-10 I.R.B. 675, 677 (Taxpayers are not required to take into account any income under royalty-free cross-licensing relationships, since "while valuation of intellectual property is always difficult, valuation of patent rights is exceedingly difficult where the parties enter into the cross licensing arrangement to avoid or settle patent infringement disputes.").

²¹⁹ See *supra* text accompanying notes 109–11.

²²⁰ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1332 (Fed. Cir. 2014).

ested in pursuing such monetary compensation. Instead, the royalty-free commitment suggests that the patentee is intensely interested in other non-financial remuneration, such as reciprocal licensing commitments, to the extent that it is willing to completely renounce the receipt of any financial compensation in order to attain these non-monetary obligations.

At base, the royalty-free commitment is meant to advance a particular business or community strategy. That chosen strategy could be relying on a collaborative development process, the sale of interoperable devices, or assurances for a firm's freedom of operation. A patentee may have opted for non-financial licensing terms over monetary license payments specifically to satisfy the needs of the chosen business or community model. Courts that refuse to enforce the non-monetary terms preferred by the patentee risk substituting the patentee's chosen model with its own ideas of how the patent rights should be exploited.

In sum, the royalty-free licensing commitment stresses the fault lines of post-*eBay* patent remedies jurisprudence. Royalty-free commitments are made by patentees motivated to disseminate their technology to the extent that they are willing to give it away for free—not the ordinary background of a patentee protesting the irreparable injury of infringement. On the other hand, the non-monetary nature of the consideration that such patentees do pursue may be impossible to quantify in monetary terms. The following Part, looking for the origins of this fracture, considers how courts in other patent licensing contexts have analyzed the questions presented by non-monetary consideration.

IV. NON-MONETARY CONSIDERATION

Conflicts between different doctrinal possibilities can have deep roots. The difficulty of resolving the contradiction of the royalty-free commitment—whether the infringement of the zero-rate committed patent may be remedied through an injunction—grows out of courts' inadequate attention to non-monetary consideration in licensing transactions, and how such non-monetary obligations have been used to structure the licensing relationship and broader industry arrangements. As shown, market participants of-

ten insert non-monetary obligations into licensing transactions in order to frame and focus the relationship of the parties. However, in performing the “irreparable harm” analysis and in determining whether to grant injunctive relief, courts have generally ignored the significance attributed by the parties themselves to these non-financial aspects of the transaction.

eBay itself reflects this myopic view. *eBay* recognized that certain patentees employ patents to “exclude,” while other patentees “prefer to license their patents.”²²¹ Moreover, the Court recognized that the goals of a licensor may be varied and, as such, the preference of one business model—exclusion or licensing—over the other does not necessarily decide the question of whether the patentee is entitled to an injunction.²²² Nonetheless, despite this appreciation for the diverse pursuits of technology owners, the Court centered its attention on the licensing of patents for monetary gain. The only “unconventional” licensing models discussed by the Court were “university researchers or self-made inventors,”²²³ whom the Court recognized “might reasonably prefer to license their patents, rather than undertake the efforts to secure the financing necessary to bring their works to market themselves.”²²⁴ Even these relatively uncommon licensing models, however, are also directed toward the receipt of monetary consideration. By the time *eBay* was decided in 2006, non-monetary licensing models such as open source or royalty-free cross-licenses (discussed in greater detail below) were already well established. Even so, these non-financial licensing frameworks were left out of the *eBay* analysis.

The two concurring opinions in *eBay*, even as they emphasize one business model or another, again take no notice of licensing models directed toward non-financial compensation. The concurring opinion of Chief Justice Roberts emphasizes how patents are

²²¹ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 392–93 (2006).

²²² *See id.* (criticizing the district court for using a “categorical rule” that a “plaintiff’s willingness to license its patents” and “its lack of commercial activity in practicing the patents” would be sufficient to establish that the patent holder would not suffer irreparable harm if an injunction did not issue).

²²³ *Id.*

²²⁴ *Id.*

used as a “right to exclude,”²²⁵ and may therefore be enforced with an injunction. The concurring opinion of Justice Kennedy emphasizes how non-practicing entities use patents “primarily for obtaining licensing fees,”²²⁶ and may therefore not suffer the irreparable harm necessary to grant an injunction. Neither concurrence, however, discusses how some patentees neither “exclude” nor seek “licensing fees,” but rather license their patents in exchange for more intangible consideration. *eBay* leaves such non-monetary licensing structures outside of the irreparable harm analysis.

Court decisions following *eBay* have continued to reflect this disregard for the role played by non-monetary obligations. For example, in both *Broadcom Corp. v. Qualcomm Inc.*²²⁷ and *Broadcom Corp. v. Emulex Corp.*,²²⁸ Broadcom sought injunctions against a competitor for patent infringement. Broadcom, a fabless semiconductor company, had previously entered into a series of cross-licensing agreements with competitors.²²⁹ Such arrangements are common in the semiconductor industry, in which companies frequently possess large patent portfolios that they wield for defensive, rather than offensive, purposes.²³⁰ These firms often hoard their patents as bargaining chips, held to be traded in broad cross-

²²⁵ *Id.* at 395.

²²⁶ *Id.* at 396 (Kennedy, J., concurring).

²²⁷ No. SACV 05-467 JVS (RNBx), 2007 U.S. Dist. LEXIS 97647, at *5 (C.D. Cal. Dec. 31, 2007).

²²⁸ Nos. SACV 09-1058 JVS (ANx), SACV 10-3963 JVS (ANx), 2012 U.S. Dist. LEXIS 129524, at *3 (C.D. Cal. Mar. 16, 2012).

²²⁹ *Emulex*, 2012 U.S. Dist. LEXIS 129524, at *13 & n.9 (noting that Broadcom had licensed the infringed patent to Intel and Agere as part of broad cross-licensing transactions); *Qualcomm*, 2007 U.S. Dist. LEXIS 97647, at *12 (“Broadcom has used licensing as a tool to settle pending or threatened litigation, but has generally done so through portfolio-wide cross-licenses. It has not licensed key technology on a patent-by-patent basis.”).

²³⁰ Peter C. Grindley & David J. Teece, *Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics*, 39 CAL. MGMT. REV. 8, 9 (1997) (discussing cross-licensing practices in the semiconductor industry); Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry, 1979-1995*, 32 RAND J. ECON. 101, 104 (2001) (positing that the patent strategy of semiconductor firms is mainly “aimed at reducing concerns about being held up by external patent owners and at negotiating access to external technologies on more favorable terms”); *see also* *Jaffe v. Samsung Elecs. Co.*, 737 F.3d 14, 19 (4th Cir. 2013) (describing the practice of cross-licensing in the semiconductor industry).

licensing deals with other semiconductor companies or to be swapped in litigation settlements.²³¹ Such cross-licensing arrangements often set royalties at zero, or nominal rates, and frequently contain the kind of reciprocal or defensive terminations provisions that also appear in royalty-free licensing commitments.²³² In other words, the cross-licensing of patents in the semiconductor industry is frequently directed toward the pursuit of non-monetary goals, rather than toward the collection of licensing fees.²³³

Both defendants in the *Broadcom* cases tried to argue that, under *eBay*, Broadcom's prior cross-licensing arrangements undercut Broadcom's motions for an injunction. Specifically, the defendants asserted that Broadcom's willingness to cross-license its patents (as per common practice in the semiconductor industry) showed that Broadcom was not averse to licensing its intellectual property and, as such, Broadcom could not show that continued infringement would result in the irreparable harm necessary to obtain an injunction.²³⁴ The courts disagreed, holding that the licensing of intellectual property in the context of a broad cross-licensing arrangement could not show that Broadcom was in general also willing to license its patents for monetary consideration.²³⁵ The *Broad-*

²³¹ Hall & Ziedonis, *supra* note 230, at 107.

²³² See Grindley & Teece, *supra* note 230, at 18 (discussing the valuation of patents in cross-licensing relationships, and noting that the net payment will be "small or zero" where "both firms contribute similar portfolio values"); Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, in 1 INNOVATION POL'Y & ECON. 119, 130 (Adam B. Jaffe et al. eds., 2001) (noting that cross licenses often "involve no running royalties, although they may involve balancing payments at the outset to reflect differences in the strength of the two companies' patent portfolios"); *id.* at 133 (describing the practices of large semiconductor firms in requiring "grantbacks" in cross licenses).

²³³ See Grindley & Teece, *supra* note 230, at 16 (discussing the non-monetary goals of patent cross-licensing in the semiconductor industry); see also Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 26 (2005) (discussing defensive patenting strategies in the semiconductor industry).

²³⁴ Indeed, in *Broadcom Corp. v. Qualcomm Inc.*, Broadcom offered such cross licenses to Qualcomm as well. See No. SACV 05-467 JVS (RNBx), 2007 U.S. Dist. LEXIS 97647, at *18 (C.D. Cal. Dec. 31, 2007).

²³⁵ *Broadcom Corp. v. Emulex Corp.*, Nos. SACV 09-1058 JVS (ANx), SACV 10-3963 JVS (ANx), 2012 U.S. Dist. LEXIS 129524, at *13 (C.D. Cal. Mar. 16, 2012) (The court held that previous Broadcom cross-licenses did not preclude the grant of an injunction because, "[w]hile the willingness to license a competitor may be significant, the context of litigation, in which Broadcom granted and receive[d] protection for intellectual

com decisions reflect the sometimes understanding of the courts that trading patents for non-financial consideration does not necessarily reflect a willingness to trade them for money.²³⁶

At the same time, however, the *Broadcom* courts did not discuss the flip side of the coin: Would the court's refusal to grant an injunction against the infringing firm undercut the cross-licensing model common in the semiconductor industry? In other words, does the attractiveness of the cross-licensing model to semiconductor firms depend to some extent on the premise that patentees may obtain an injunction to enforce their patents, such that the denial of the injunction would erode both the licensor's readiness to grant a broad cross-license as well as the licensee's call to receive one?²³⁷ Neither of the parties in a royalty-free cross-license relationship is pursuing monetary compensation. To the extent that the non-monetary structure of the cross-licensing model rests on a court's

property [through a cross license], substantially diminishes the point."); *Qualcomm*, 2007 U.S. Dist. LEXIS 97647, at *18 ("A willingness to [license] a competitor as part of a broad cross-license arrangement where resolution of litigation is a major incentive is not the same as the willingness to grant a competitor . . . a license which will only serve to improve unilaterally the competitor's position.").

²³⁶ *Compare* *ePlus, Inc. v. Lawson Software, Inc.*, No. 3:09cv620, 2011 U.S. Dist. LEXIS 54957, at *46 (E.D. Va. May 23, 2011) (stating that agreements that contained cross licenses or a covenant not to sue could not be used in a "reasonable, reliable way" in order "to arrive at an ongoing royalty"), *with* *Advanced Cardiovascular Sys. v. Medtronic Vascular, Inc.*, 579 F. Supp. 2d 554, 561 (D. Del. 2008) ("The fact that ACS was selective regarding its licensing compensation—exchanging its technology only for other licenses to competing technology—does not rectify the fact that ACS was willing, ultimately, to forego its exclusive rights for some manner of compensation."). *Compare* *Apple, Inc. v. Samsung Elecs. Co.*, No. 11-CV-01846-LHK, 2014 U.S. Dist. LEXIS 29721, at *112 (N.D. Cal. Mar. 6, 2014), *aff'd in part, rev'd in part, vacated in part*, 786 F.3d 983 (Fed. Cir. 2015) (holding that the "special conditions" of the HTC agreement "provide little insight into whether Apple would be willing to provide Samsung unencumbered access to the patented features for money"), *with* *Apple, Inc. v. Samsung Elecs. Co.*, No. 11-CV-01846-LHK, 2013 U.S. Dist. LEXIS 160337, at *47 (N.D. Cal. Nov. 7, 2013) (allowing the introduction into evidence of a "broad cross-license" agreement with HTC in order to show Apple's willingness to license patents, but not to demonstrate the amount of reasonable compensation for infringement).

²³⁷ *See* *Ellis et al.*, *supra* note 147, at 459–63 (discussing that the reduced likelihood of injunctions after *eBay* limits the incentives to grant and take licenses); *Hall & Ziedonis*, *supra* note 230, at 109, 117 (noting how the propensity of the Federal Circuit to grant preliminary injunctions in patent infringement cases was one of the reasons that "patents had become far more important" to semiconductor firms "to use as bargaining chips in negotiations with other patent owner" in order to obtain a cross license).

willingness to protect the underlying patents with injunctive relief—rather than through the grant of monetary compensation that interests no one—then the failure to grant such injunctions may result in irreparable harm to the parties’ business models, in the same way that the failure to enjoin against the infringement of patents that are used to exclude competitors results in irreparable harm to the business model of those patentees.²³⁸ Both patent strategies—exclusion of competitors and cross-licensing for non-monetary rewards—pursue non-financial rewards as an initial matter, and as such both may depend on the ability to enforce patent rights through injunctions rather than monetary compensation in order to attain such non-financial goals. Perhaps a patentee would not make its own technology available through cross-license arrangements if it could otherwise obtain such access through court-sanctioned monetary compensation.²³⁹ Even so, while the *Broadcom* courts readily acknowledged how injunctions are essential to the first model of exclusion, they overlooked the possible importance of injunctions to the second licensing model. Following *eBay*, the courts did not have an analytical framework to assess the significance of injunctions in the context of non-monetary licensing models.

Indeed, like the *Broadcom* decisions, other cases that have examined the effect of prior cross-licenses on the *eBay* analysis have uniformly considered only whether those prior licenses undercut a patentee’s right to an injunction.²⁴⁰ None of those cases have considered whether a patentee’s non-monetary cross-licensing strate-

²³⁸ See *supra* text accompanying notes 210–15 (arguing that certain non-monetary licensing strategies may require courts to grant injunctive relief).

²³⁹ Cf. Joshua S. Gans et al., *When Does Start-Up Innovation Spur the Gale of Creative Destruction?*, 33 RAND J. ECON. 571, 572 (2002) (providing a model indicating that stronger patent protection leads to more cooperation among firms, such as through licensing); Richard J. Gilbert & Willard K. Tom, *Is Innovation King at the Antitrust Agencies? The Intellectual Property Guidelines Five Years Later*, 69 ANTITRUST L.J. 43, 66–74 (2001) (detailing arguments by Intel that preventing the company from withholding its own intellectual property in patent disputes would “make it more difficult to reach pro-competitive cross-licensing agreements”).

²⁴⁰ See, e.g., *Canon Inc. v. GCC Int’l Ltd.*, 450 F. Supp. 2d 243, 255 (S.D.N.Y. 2006) (“This is not a case where plaintiff had freely licensed the product to others. The licenses that have been granted have been in the nature of cross-licenses and not for the manufacture and sale of products.”).

gy may actually weigh in favor of granting injunctions against infringement. Courts have focused on the question of whether a licensing strategy that pursues *monetary* compensation undercuts the possibility of injunctive relief, and this focus has distracted from the possibility that licensing models which only pursue *non-monetary* compensation may in contrast require injunctions in order to support the licensing model.

This perspective has carried over to the FRAND context. *Apple v. Motorola*²⁴¹ discussed how Motorola's FRAND commitment to provide licenses to an indiscriminate number of firms showed that "money damages are adequate to fully compensate Motorola for any infringement."²⁴² At the same time, the court listed a number of situations in which Motorola could be entitled to an injunction notwithstanding the FRAND commitment—"where an infringer unilaterally refuses a FRAND royalty or unreasonably delays negotiations to the same effect."²⁴³ These two situations involve breaches of the monetary trade underlying the FRAND commitment. The court, however, did not address the propriety of granting injunctions to enforce the non-monetary requirements standard to FRAND agreements, such as restrictions on the license scope, reciprocal licenses and defensive suspension provisions. Moreover, the court did not consider the possible harm that would result from providing access to FRAND-encumbered technology under court-determined royalties without these accompanying non-monetary protections. These non-financial provisions are core to the FRAND bargain, protecting both the commercial interests of the patentee (by shielding its development of standard compliant devices) and the shared interests of the standards community (by encouraging participation notwithstanding the broad licensing commitments).²⁴⁴ Even so, the possible "irreparable harm" that could

²⁴¹ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1332 (Fed. Cir. 2014).

²⁴² *Id.*

²⁴³ *Id.* Judge Prost, writing separately, asserted that a FRAND-committed patentee should not be able to obtain injunctive relief if the infringer refuses to take a FRAND license. According to Judge Prost, injunctive relief should only issue where the patentee is unable to collect monetary damages. *Id.* at 1342–43 (Prost, J., concurring in part and dissenting in part). Judge Prost's discussion also overlooked the question of whether patentees should be able to obtain an injunction for the breach of non-monetary license terms. *See id.*

²⁴⁴ *See* discussion *supra* Section I.E.

result from the failure to enforce the non-monetary aspects of the typical FRAND bargain was simply not part of the court's calculus.²⁴⁵

This is not to say, of course, that the incidence of non-monetary aspects in a licensing model should always require courts to grant injunctive relief for infringement of the licensed patents. Each litigated licensing relationship is unhappy in its own way, and the importance of non-monetary provisions to a FRAND commitment where the patentee may receive considerable financial compensation differs substantially from the significance of those same provisions to a royalty-free commitment or a cross-licensing relationship where the patentee pursues no financial rewards at all. Moreover, the individual facts and circumstances of each specific case speak to the question of irreparable harm as well as to other facets of the *eBay* test.²⁴⁶ My point is only that courts have generally ignored the importance of remedies (money damages vs. injunctions) to the non-monetary aspects of licensing relationships. As a consequence, no appropriate analytical framework exists to be ap-

²⁴⁵ A number of other courts have similarly focused on the possibility of receiving an injunction if an infringer does not comply with its monetary obligations under the FRAND bargain, but have overlooked the question of compliance with the non-monetary aspects of FRAND. *See Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1049 n.19 (9th Cir. 2015) (noting that “if an infringer refused to accept an offer on RAND terms, seeking injunctive relief could be consistent with the RAND agreement”); *Realtek Semiconductor Corp. v. LSI Corp.*, 946 F. Supp. 2d 998, 1007 (N.D. Cal. 2013) (finding that an injunction against the infringer of RAND-encumbered patent “may be warranted where an accused infringer of a standard-essential patent outright refuses to accept a RAND license”); *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 913–14 (N.D. Ill. 2012) (“I don’t see how, given FRAND, I would be justified in enjoining Apple from infringing the ‘898 [patent] unless Apple refuses to pay a royalty that meets the FRAND requirement.”). In the case of *Microsoft v. Motorola*, Motorola asserted that a FRAND patentee may seek injunctive relief against an infringer that contravened the kind of defensive termination clauses which are “common” in RAND relationships. *See* Letter Brief for Motorola at 3, *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 161762 (W.D. Wash. Nov. 12, 2013), ECF No. 851. The court did not directly address the question, holding that the jury reasonably found that Motorola’s overall course of conduct was a breach of its RAND commitment. *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 U.S. Dist. LEXIS 138786, at *35–36 (W.D. Wash. Sep. 24, 2013).

²⁴⁶ The *eBay* test, of course, also requires an analysis of the balance of the hardships and the public interest. *See supra* text accompanying note 134.

plied to licensing structures that, like the public royalty-free commitment, involve no monetary compensation at all.

The open source case of *Jacobsen v. Katzer*²⁴⁷ is one decision that did recognize the possible importance of injunctive relief for a non-monetary licensing model, albeit in the context of copyright, rather than patent license. *Jacobsen* involved a hobbyist that had developed software for controlling model trains on their railroad tracks. This “Java Model Railroad Interface” (“JMRI”) was made available by the author at no charge under the Artistic License, an open source software license that generally provides users with broad rights to use, modify, and distribute the software without payment of any license fees.²⁴⁸ At the same time, the Artistic License imposes certain minimal, non-monetary obligations on users, such as a requirement to provide certain copyright notices and notices regarding modification,²⁴⁹ and a requirement to make certain modifications publicly available.²⁵⁰ The defendant did not satisfy these non-financial requirements, and the Federal Circuit was called to determine whether defendant’s breach of its obligations raised a claim under copyright law. This determination, under then-current law, would significantly impact whether the plaintiff was entitled to injunctive relief.²⁵¹

The Federal Circuit found that the failure to satisfy the license conditions did indeed raise copyright claims, and that the plaintiff was therefore potentially entitled to an injunction. The decision mostly hinged on the interpretation of the specific language used in the license, rather than on substantive matters of copyright law. At

²⁴⁷ 535 F.3d 1373 (Fed. Cir. 2008).

²⁴⁸ For the text of the Artistic License, see *Artistic License 1.0*, OPEN SOURCE INITIATIVE, <http://opensource.org/licenses/artistic-license-1.0> [https://perma.cc/3LQ2-PNWS] (last visited Oct. 11, 2016).

²⁴⁹ *Id.* § 3.

²⁵⁰ *Id.* § 4.

²⁵¹ When *Jacobsen* was first before the district court, applicable law required that a plaintiff who had demonstrated “probable success on the merits” was only required to show a “possibility” of irreparable injury in order to be entitled to injunctive relief. *Winter v. Nat. Res. Def. Council*, 555 U.S. 7, 367 (2008). The Supreme Court later decided that a plaintiff must show that it is “likely” to suffer irreparable harm. *Id.* This change in the law resulted in the district court eventually refusing to provide injunctive relief. See *infra* text accompanying note 255.

the same time, the court addressed at length the significance of the non-financial nature of the license obligations:

Traditionally, copyright owners sold their copyrighted material in exchange for money. The lack of money changing hands in open source licensing should not be presumed to mean that there is no economic consideration, however. There are substantial benefits, including economic benefits, to the creation and distribution of copyrighted works under public licenses that range far beyond traditional license royalties. For example, program creators may generate market share for their programs by providing certain components free of charge. Similarly, a programmer or company may increase its national or international reputation by incubating open source projects. Improvement to a product can come rapidly and free of charge from an expert not even known to the copyright holder.²⁵²

In other words, according to the court, open source licensors receive value in exchange for their works even though the works are provided at no monetary cost to their users. This value can come in the form of the user's purchase (for money) of complementary software and services provided by the licensor. Such value could also come in the form of more intangible consideration, such as an increase in reputation or a decrease in development costs, both a result of a greater number of users receiving, reviewing, and benefiting from the freely available software.

The non-monetary notice requirements of the Artistic License, according to the court, were "vital"²⁵³ to ensuring that the open source licensor received such non-monetary value. The copyright notice required by the license provided users with information about the source of the JMRI project, allowing such users to join in the "collaborative effort"²⁵⁴ of the project. Additional notices required by the license delivered information about how the software

²⁵² *Jacobsen*, 535 F.3d at 1379.

²⁵³ *Id.* at 1381.

²⁵⁴ *Id.*

was being used and improved, providing the licensor with important market insights.

The difficulty of valuing the non-financial value delivered by these obligations, continued the court, weighed in favor of granting injunctive relief for breach of the license: “Indeed, because a calculation of damages is inherently speculative, these types of license restrictions might well be rendered meaningless absent the ability to enforce through injunctive relief.”²⁵⁵ In other words, injunctions against continued infringement may be necessary to sustain the open source licensing model. The failure to provide such injunctive relief, and the provision of court-determined monetary compensation, would instead undermine the non-financial strategies of the open source licensor in seeking additional “creative collaborators,” recognition, or the promotion of other commercially licensed software.²⁵⁶ Commentators have further excavated *Jacobsen*’s insight, showing the difficulty in having courts quantify in monetary terms the harm resulting from the failure to comply with non-financial requirements.²⁵⁷ Subsequent scholarship has expanded these arguments by pointing to the social significance of the open source insistence on non-monetary rewards, and how substituting financial compensation for those non-monetary requirements fundamentally clashes with the communal values and goals of the open source licensor.²⁵⁸

²⁵⁵ *Id.* at 1382.

²⁵⁶ *Id.* On remand, however, the district court found that plaintiff had not demonstrated a likelihood of irreparable harm and was not entitled to an injunction. According to the court, the plaintiff “failed to proffer any evidence of any specific and actual harm suffered as a result of the alleged copyright infringement and . . . failed to demonstrate that there is any continuing or ongoing conduct that indicates future harm is imminent.” *Jacobsen v. Katzer*, 609 F. Supp. 2d 925, 937 (N.D. Cal. 2009). Though the Federal Circuit in *Jacobsen* recognized the importance of injunctive relief to the royalty-free licensing model, the case may best be seen as demonstrating the difficulty of showing irreparable harm in circumstances where the rights holder has granted royalty-free licenses on an indiscriminate basis.

²⁵⁷ See, e.g., David McGowan, *The Tory Anarchism of F/OSS Licensing*, 78 U. CHI. L. REV. 207, 218 (2011) (noting that the lesson of *Jacobsen* is that “most of the time it is costly and difficult for third parties to calculate the value of things that are not already priced by the parties themselves”).

²⁵⁸ See, e.g., McGowan, *supra* note 122, at 593 (recognizing that failure to comply with the notice requirements of an open source license “is an insult,” and suggesting that such requirements “can be cashed out is to compound that insult by refusing to recognize their

The open source community lauded the *Jacobsen* decision.²⁵⁹ But *Jacobsen*, in the field of copyright, stands in tension with previously discussed doctrinal strands in the field of patent law tugging away from the availability of injunctive relief for non-monetary licensing commitments. In contrast to *Jacobsen*, cases addressing royalty-free cross-licenses have (like the *Broadcom* cases) failed to recognize the importance of injunctions to the non-monetary structure of that licensing model. FRAND decisions have concentrated on the difficulty of proving irreparable harm for licensing commitments under rationales that would equally apply to royalty-free commitments. Even *eBay* itself overlooked non-financial patent licensing models and the significance of appropriate remedies for upholding those licensing strategies.²⁶⁰

own view [of the licensors] that their work is about something more than (or at least other than) money”); R. Michael Azzi, Note, *CPR: How Jacobsen v. Katzer Resuscitated the Open Source Movement*, 2010 U. ILL. L. REV. 1271, 1299 (noting that injunctions are appropriate for enforcement of open source licenses since the underlying goal of open source developers is often “compliance, not money, for their distribution efforts, and a court should respect such value judgments on the part of the licensor”). Indeed, legal obligations of reciprocity in standard-setting organizations may also reflect the need for (non-financial) social norms of trust in the collaborative relationship. See generally Walter W. Powell, *Neither Market nor Hierarchy: Network Forms of Organization*, 12 RES. ORG. BEHAV. 295, 304–05 (1990) (discussing the need for trust and reciprocity in network relationships).

²⁵⁹ See, e.g., Brian Rowe, *The “IP” Court Supports Enforceability of CC Licenses*, CREATIVE COMMONS BLOG (Aug. 13, 2008), <https://creativecommons.org/2008/08/13/the-ip-court-supports-enforceability-of-cc-licenses> [https://perma.cc/4M8Y-3MA2] (stating that *Jacobsen* “demonstrates a strong understanding of basic economic principles”); see also Lawrence Rosen, *Bad Facts Make Good Law: The Jacobsen Case and Open Source*, 1 INT’L FREE & OPEN SOURCE SOFTWARE L. REV. 27, 28 (2009) (describing how in *Jacobsen* “various open source organizations cooperated to write an amicus brief that focused . . . on the critical issues” and how the “decision finally settled that open source licensors can enforce their licenses effectively”).

²⁶⁰ A few district courts have paid lip service to the significance of non-monetary obligations in license agreements. Such statements have typically been made without analysis of the importance of such non-financial provisions, and have been ancillary to the consideration of other arguments that the courts considered more central to the question of whether injunctive relief should issue. See, e.g., *Trading Techs. Int’l, Inc. v. eSpeed, Inc.*, No. 04 C 5312, 2008 U.S. Dist. LEXIS 86953, at *11 (N.D. Ill. May 22, 2008) (agreeing with plaintiff that injunction is justified since in addition to other factors monetary compensation would “not contain the myriad protections that a licensing agreement would normally possess”); *Transocean Offshore Deepwater Drilling, Inc., v. GlobalSantaFe Corp.*, No. H-03-2910, 2006 U.S. Dist. LEXIS 93408, at *19 (S.D. Tex. Dec. 27, 2006) (noting in a supplementary reason for providing an injunction that

CONCLUSION

The doctrinal tangles of *eBay* lead to confusion for the royalty-free licensing commitment. Ironically, however, the difficulty of subsuming the royalty-free commitment into the *eBay* test only confirms the suitability of the test for performing the jurisprudential calculus of injunctive relief. *eBay* eschewed “broad classifications” or “categorical rule[s]”²⁶¹ that hinder courts from examining the specific circumstances of the case, instead demanding that courts exercise their discretion in fashioning remedies appropriate to the facts before them.²⁶² In this way, *eBay* provides a suitable framework for assessing unusual legal structures that, like the royalty-free licensing commitment, depart from more ordinary frameworks in their pursuit of atypical objectives. Indeed, Justice Kennedy, concurring in the *eBay* decision, noted that the broad latitude granted to courts in determining whether to grant an injunction “is well suited to allow courts to adapt to the rapid technological and legal developments in the patent system.”²⁶³ The Federal Circuit, in tailoring the *eBay* test for the context of FRAND commitments, similarly emphasized that the *eBay* test provides “ample strength and flexibility” in addressing the “unique aspects”²⁶⁴ raised by those licensing frameworks.

In contrast, other courts and commentators have championed stronger rules against the grant of injunctive relief for patents encumbered by broad licensing commitments. The district court in *Apple v. Motorola*, for example, seemed to adopt a per se rule against injunctive relief when it stated that FRAND commitments “implicitly acknowledged that a royalty is adequate compensation for a license to use” the infringed patent.²⁶⁵ A range of academic

compensation in the form of monetary damages would not “contain any of the commercial business terms typically used by a patent holder to control its technology or limit encroachment on its market share”).

²⁶¹ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 393 (2006).

²⁶² District courts have “considerable discretion” in “determining whether the facts of a situation require it to issue an injunction.” *Id.* at 394 (quoting *Roche Prods. v. Bolar Pharm. Co.*, 733 F.2d 858, 865 (Fed. Cir. 1984)).

²⁶³ *Id.* at 397.

²⁶⁴ *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1332 (Fed. Cir. 2014), *overruled on other grounds by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015).

²⁶⁵ *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 914 (N.D. Ill. 2012), *aff’d in part, rev’d in part*, 757 F.3d 1286 (Fed. Cir. 2014).

scholarship has also pressed for a broad rule against injunctions in the FRAND context.²⁶⁶ That bright line, however, disregards the non-monetary aspects and obligations common to both FRAND and royalty-free commitments, and would rule out injunctive relief even when a plaintiff may be able to show that the failure to satisfy such non-financial obligations had caused them irreparable harm. Should a FRAND-committed patentee, for example, be categorically ineligible for injunctive relief even when the defendant initiated patent litigation, a step that may have violated a defensive suspension provision? Should the rule against injunctions also apply when the defendant implemented the patented technology in technology that was not interoperable, or which fell outside the licensed specifications? A firm rule against injunctions would not admit a consideration of these issues, but the flexibility of the *eBay* rule could accommodate them in the context of both FRAND and royalty-free commitments.

Consideration of non-monetary obligations also belies the adoption of firmer rules against injunctions in standards organizations. Some scholars and regulatory bodies have pressed standards organizations to make clear that patentees limit their right to pursue injunctive relief when they make licensing commitments.²⁶⁷ Such clarification, proponents argue, would bring clarity to vague licensing commitments, and simplify the role of the courts in enforcing FRAND promises.²⁶⁸ Following these calls, the Institute of Electrical and Electronics Engineers Standards Association (“IEEE-SA”) updated its own patent policy to restrict the availability of injunctive relief for FRAND-committed patentees. According to the updated IEEE-SA policy, patentees may not pursue injunctive relief for FRAND-encumbered patents unless and until they have participated in an adjudication (including an appellate review) to

²⁶⁶ See *supra* text accompanying note 173.

²⁶⁷ See, e.g., Hesse, *supra* note 101, at 9 (suggesting that standards bodies could “[p]lace some limitations on the right of the patent holder who has made a F/RAND licensing commitment who seeks to exclude . . . through an injunction”); Kuhn et al., *supra* note 101, at 1, 4–5 (arguing that a licensing “commitment should include a process that [patentees] must follow before they can seek an injunction or exclusion order”).

²⁶⁸ Hesse, *supra* note 101, at 10 (arguing that “[s]tandards bodies whose members choose to take steps such as these will help the market for the standardized product to work efficiently by lowering costs, increasing transparency and reducing uncertainty—all of which benefit innovation and competition”).

determine the terms of a licensing arrangement and resolve other patent claims.²⁶⁹ This broad rule, however, does not distinguish between FRAND and royalty-free commitments, and would also preclude patentees from bringing suits for injunctive relief against infringers that violate non-monetary requirements—such as using encumbered technology outside the licensed scope or without providing reciprocal access to their own intellectual property. This Article has suggested that a less rigid rule may be appropriate for royalty-free commitments, or even with respect to the non-monetary obligations in FRAND commitments. While the revised IEEE-SA rule may be appropriate for patentees that seek primarily monetary compensation, it could potentially undermine business models that do not pursue financial rewards as well as the objectives of non-financial obligations embedded in more standard licensing arrangements.

While this Article has concentrated on the royalty-free commitment, such arrangements simply present a situation that, given the absence of all financial obligation, highlights the non-monetary aspects of the trade. A range of other intellectual property transactions, from FRAND obligations to cross-licensing structures and ordinary licensing agreements, also include non-monetary condi-

²⁶⁹ Section 6.2 of the IEEE-SA Standards Board Bylaws states that a FRAND-committed patentee “agrees that it shall neither seek nor seek to enforce a Prohibitive Order [e.g., an injunction] . . . in a jurisdiction unless the implementer fails to participate in, or to comply with the outcome of, an adjudication, including an affirming first-level appellate review, if sought by any party within applicable deadlines, in that jurisdiction by one or more courts that have the authority to: determine Reasonable Rates and other reasonable terms and conditions; adjudicate patent validity, enforceability, essentiality, and infringement; award monetary damages; and resolve any defenses and counterclaims.” *Policies and Procedures*, IEEE STANDARDS ASS’N, <http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6> [<https://perma.cc/ZS6C-YA23>] (last visited Oct. 11, 2016). The Department of Justice, in a business review letter that primarily focuses on patentees that seek monetary compensation, has stated that the revised IEEE-SA Patent Policy is unlikely to result in competitive harm. The letter states that the revised policy “will not be significantly more restrictive than current U.S. case law” and “does not affect the rights of patent holders . . . to seek patent damages, in the form of RAND compensation, for infringement of their patents when the parties cannot agree to a negotiated license.” See Letter from Renata B. Hesse, Acting Assistant Att’y Gen., U.S. Dep’t of Justice Antitrust Div., to Michael A. Lindsay, Dorsey & Whitney LLP 10 (Feb. 2, 2015), <http://www.justice.gov/sites/default/files/atr/legacy/2015/02/02/311470.pdf> [<https://perma.cc/8NRZ-N6LJ>].

tions. While the financial figures of such arrangement may eclipse any attendant non-monetary conditions, those latter non-financial obligations also serve important functions in the transaction. Should courts issue injunctions when licensees fail to comply with such obligations? How should courts assess the importance of the non-monetary requirements to the broader goals of the patentee? The flexible *eBay* standard provides an accommodating vehicle for driving the analysis of these questions, so long as courts are willing to go beyond the standard exclusion/licensing divide.