THE USE AND MISUSE OF PATENT LICENSES

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ABSTRACT

As the number of nine- and ten-figure verdicts continues to increase it is impossible not to take notice: patents are becoming an ever bigger business with more and more wealth at stake. At the center of that business lie the damages that courts award at trial, and the ways in which courts go about calculating those damages. Yet the legal standards meant to govern patent damages are notoriously ambiguous and unhelpful. In the face of these difficulties, courts have sought a market mechanism that would aid them in calculating patent damages. The solution they have seized upon is to use existing licenses, typically granted by the plaintiff to third parties, as evidence of the proper measure of damages. But the use of existing licenses to measure reasonable royalty damages creates three significant and distinct problems: first, it relies upon private information available only to the parties to the pre-existing licensing agreement; second, it is ineluctably circular; and third, it creates incentives for the patent holder to distort the value of the licenses it negotiates in order to mislead the court. The Article describes and analyzes these three problems, and then turns to potential solutions. It analyzes a variety of possible reforms, including selection of particular licenses for comparison or the application of a multiplier to the value of existing licenses. Though several of these solutions show promise, none come close to being a complete answer. It may well be that courts have no choice but to largely ignore existing licenses when calculating patent damages, leaving them more at sea than ever.

INTRODUCTION

In 2012, the three largest jury verdicts handed down anywhere in the United States came in patent cases. Carnegie Mellon won a $1.17 billion verdict against Marvell Technology Group for infringing integrated circuit

patents;[1] Apple won a $1.05 billion judgment against Samsung for patents related to its smartphones and tablets;[2] and Monsanto was awarded $1 billion in a lawsuit against DuPont over patents on genetically modified soybeans.[3] Five other firms won damages verdicts in excess of $100 million.[4] The following year, Pfizer avoided shattering the record for the largest patent verdict in history by settling claims against two generic drug manufacturers for $2.15 billion just as jury deliberations were about to begin.[5] In between these headline-making numbers, dozens of plaintiffs won verdicts in the millions or tens of millions of dollars, and many more patent owners negotiated royalty agreements outside of litigation for millions more.[6] After enough nine- and ten-figure verdicts it is impossible not to take notice: patents are becoming an ever larger business with more and more wealth at stake. At the center of that business lie the damages that

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[1] Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd., 986 F. Supp. 2d 574, 582 (W.D. Pa. 2013); Verdict and Settlement Summary, Carnegie Mellon University vs. Marvell Technology Group Ltd. & Marvell Semiconductor Inc., 2012 WL 8262739 (W.D. Pa. Dec. 26, 2012) (No. 09-CV-00290).

[2] Verdict and Settlement Summary, Apple Inc. v. Samsung Elecs. Co., 2012 WL 4078433 (Aug. 24, 2012) (No. 11-CV-01846).

[3] *Monsanto Awarded $1 Billion in Patent Infringement Case Against Dupont*, 19 No. 8 WJINTPROP 4 (Aug. 9, 2012); Verdict returned, Monsanto Co. v. E.I. du Pont de Nemours & Co., (E.D. Mo. Aug. 1, 2012) (No. 09-CV-00686).

[4] Verdict and Settlement Summary, VirnetX v. Cisco Sys., 2012 WL 7638169 (E.D. Tex. Nov. 6, 2012) (No. 10-CV-00417) ($368M); Jury Verdicts, General Electric Company v. Mitsubishi Heavy Industries, Ltd. and Mitsubishi Power Systems Americas, Inc., 2012 Jury Verdicts LEXIS 2875 (N.D. Tex. Mar. 8, 2012) (No. 10-CV-00276) ($170M); Verdict and Settlement Summary, Mformation Technologies Inc. v. Research In Motion Limited, 2012 WL 10864224 (N.D. Cal. Aug. 8, 2012) (No. 08-CV-04990) ($147M); Jury Verdicts, Brocade Communications Systems, Inc. v. A10 Networks, Inc., 2012 Jury Verdicts LEXIS 18042 (N.D. Cal. Aug. 6, 2012) (No. 10-CV-03428) ($112M); Jury Verdicts, WesternGeco LLC v. Ion Geophysical Corp., 2012 Jury Verdicts LEXIS 14042 (S.D. Tex. Aug. 16, 2012) (No. 09-CV-1827) ($106M).

[5] *Teva, Sun Pharma to Pay $2.15 Billion to Settle Pfizer Patent Suit*, 20 No. 5 WJINTPROP 8 (Jun. 26, 2013)

[6] Verdict and Settlement Summary, Shelbyzyme LLC v. Genzyme Corp., 2012 WL 5266437 (D. Del. Jul. 17, 2012) (No. 09-CV-00768) ($50M); Verdict and Settlement Summary, Enzo Biochem v. Applera Corp., 2012 WL 6951353 (D. Conn. Nov. 1, 2012) (No. 04-CV-00929) ($48.6M); Verdict and Settlement Summary, I/P Engine v. AOL Inc., 2012 WL 10033892 (E.D. Va. Nov. 6, 2012) (No. 11-CV-00512) ($30.5M); Verdict and Settlement Summary, Pacific Bioscience Labs. v. Nutra Luxe, 2012 WL 8628035 (W.D. Wa. Sept. 12, 2012) (No. 10-CV-00230) ($11.6M); Gene Quinn, *Patent Business: Deals, Acquisitions & Licenses July 2012* (Jul. 20, 2012), http://www.ipwatchdog.com/2012/07/20/patent-business-deals-acquisitions-licenses-july-2012/id=26073/; Gene Quinn & Angel Krippner, *Patent Deals, Licenses and Settlements – December 2012* (Dec. 30, 2012), http://www.ipwatchdog.com/2012/12/30/patent-deals-licenses-and-settlements-december-2012/id=30879/.

courts award at trial and the ways in which courts go about calculating those damages.

Part of the explanation for the heightened focus on monetary damages in patent law is the Supreme Court's 2006 decision in *eBay v. MercExchange*.[7] That decision made it more difficult for prevailing patent plaintiffs to obtain injunctions.[8] One of the primary benefits of granting an injunction was that it often freed the judge from having to calculate damages independently, leaving that determination to the parties.[9] With injunctions becoming less common in cases where a patent holder prevails, the calculation of damages for patent liability has moved closer to center stage. The result is renewed attention to damages calculations, from both the courts[10] and the scholarly literature.[11]

Nonetheless, courts' efforts to calculate patent damages continue to be plagued by a number of well-understood problems. In some instances, the plaintiff and defendant are both practicing entities that produce competing products.[12] In these cases, the judge or jury has the

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[7] 547 U.S. 388 (2006).

[8] *Id.* Prior to *eBay*, there was a presumption in favor of granting an injunction to a prevailing plaintiff in a patent case. *eBay* held that the usual rules of equity applied and that courts might only grant an injunction when a four-factor test favored doing so—which was not always the case.

[9] Guido Calabresi & Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972) (noting that an injunction clarifies the parties' rights, allowing them to return to the bargaining table and negotiate privately).

[10] *See, e.g.*, Apple v. Samsung, 2014 WL 549324 (denying Apple's request for additur following a second trial on damages); Apple v. Samsung, 2014 WL 6687122 (setting ongoing royalty payments); Lucent v. Gateway, 580 F.3d 1301 (Fed. Cir. 2009); In re Innovatio IP Ventures, LLC Patent Litigation, 2013 WL 5593609; Apple, Inc. v. Motorola, Inc., 869 F. Supp. 2d 901 (N.D. Ill. 2012) (Posner, J.); Apple, Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014).

[11] *See, e.g.*, John C. Jarosz, Michael J. Chapman, *The Hypothetical Negotiation and Reasonable Royalty Damages: The Tail Wagging the Dog*, 16 STAN. TECH. L. REV. 769 (2013); Merritt J. Hasbrouck, *Protecting the Gates of Reasonable Royalty: A Damages Framework for Patent Infringement Cases*, 11 J. MARSHALL REV. INTELL. PROP. L. 192, 215 (2011); David O. Taylor, *Using Reasonable Royalties to Value Patented Technology*, 49 GA. L. REV. 79 (2014); Stephen J. Conroy et. al., *The Case for Admitting Settlement License Agreements in A Reasonable Royalty Analysis*, 46 LES NOUVELLES 291 (2011); Jaimeson Fedell, *A Step in the Right Direction: Patent Damages and the Elimination of the Entire Market Value Rule*, 98 MINN. L. REV. 1143 (2014); Layne S. Keele, *Res"Q"Ing Patent Infringement Damages After Resqnet: The Dangers of Litigation Licenses As Evidence of A Reasonable Royalty*, 20 TEX. INTELL. PROP. L.J. 181, 205 (2012).

[12] *See, e.g.*, Lam, Inc. v. Johns-Manville Corp., 718 F.2d 1056 (Fed. Cir. 1983) ("In patent infringement action in two-supplier market, lost profits damages may be in form of diverted sales, eroded prices or increased expenses"); Siemens Med. Solutions USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc., 637 F.3d 1269 (Fed. Cir. 2011) (substantial evidence existed for award of lost profits based on existence of two-supplier, high-end

comparatively easier task of determining damages by estimating lost profits: how many additional sales would the plaintiff have made had the defendant not infringed its patent?[13] Of course, one uses the word "easier" advisedly; this task is far from simple. It can be tremendously difficult to determine how many sales a patent holder lost because of the infringement, or if it lost any at all. The patent may cover a feature that is largely irrelevant to consumer decisions, or it may duplicate an equally attractive non-infringing technology that the defendant could have employed instead. Thus, determining lost profits requires a court to answer a complex counter-factual—how many units would the plaintiff have sold absent the infringement—without reliable access to much of the relevant information. Not surprisingly, the legal guidance provided by the courts of appeal—most notably the *Panduit* factors, after the case by the same name[14]—is notoriously ambiguous and unhelpful.

However, in an increasing number of cases, the patent holder has no lost profits, cannot prove lost profits, or simply does not wish to attempt to do so.[15] In those cases, the patent plaintiff will instead seek a "reasonable

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market.); DSU Med. Corp. v. JMS Co., 471 F.3d 1293 (Fed. Cir. 2006) ("[E]ven though competitor attempted to suggest that the market included numerous other noninfringing alternatives to its device, patent owner provided evidence that no other non-infringing alternatives were acceptable during the necessary time periods."); Mark A. Lemley, Distinguishing Lost Profits from Reasonable Royalties, 51 WM. & MARY L. REV. 655 (2009) ("Courts interpreting this provision have divided patent damages into two groups-lost profits, available to patent owners who would have made sales in the absence of infringement, and reasonable royalties, a fallback remedy for everyone else.").

[13] *See, e.g.*, King Instruments Corp. v. Perego, 65 F.3d 941, 953 (Fed. Cir. 1995) ("In determining the amount of damages to which King was entitled, the district court considered: (1) the number of lost sales; (2) the gross receipts King would have obtained from the lost sales had there been no infringement by Tapematic; (3) the cost of sales to be deducted from gross receipts; and (4) King's profit on the lost sales."); Versata Software, Inc. v. SAP Am., Inc., 717 F.3d 1255, 1260 (Fed. Cir. 2013) ("Versata claimed this consisted of 93 lost sales, and it put forward evidence regarding demand, the absence of noninfringing alternatives, and the capacity to sell Pricer in this market."); Micro Chem., Inc. v. Lextron, Inc., 318 F.3d 1119 (Fed. Cir. 2003) ("To recover lost profits damages, patentee must show that "but for" infringement it reasonably would have made additional profits enjoyed by infringer.").

[14] Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152 (6th Cir. 1978). The four *Panduit* factors are "(1) demand for the patented product, (2) absence of acceptable noninfringing substitutes, (3) his manufacturing and marketing capability to exploit the demand, and (4) the amount of the profit he would have made." *Id.* at 1156.

[15] In some but hardly all cases, this will occur because the patent owner is a non-practicing entity that does not produce a product and thus has no profits to lose. *See* Christopher A. Cotropia, Jay P. Kesan & David L. Schwartz, *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. (forthcoming 2015); David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335 (2012). On other occasions, the patent owner might simply believe that it is advantageous to pursue a reasonable royalty

royalty," which the court must determine.[16] Calculating lost profits is by no means trivial, but it is substantially more determinate and straightforward than estimating a reasonable royalty. To accomplish this latter task, a court must attempt to reconstruct a hypothetical negotiation between patent plaintiff and defendant—which likely never took place—and determine the amount of money for which the two parties would have agreed to settle.[17]

Worse still, the legal guidance provided to courts and juries is almost comically counter-productive. When determining reasonable royalty damages, courts are instructed to consider the fifteen influential *Georgia-Pacific* factors,[18] a laundry list of considerations that shed little light on the appropriate dollar figures. The Federal Circuit has (correctly) struck down more determinate types of guidance, such as the "25% rule of thumb," according to which 25% of the defendant's profits should be paid to a patent defendant as a reasonable royalty.[19] Similarly, it has (correctly) limited the number of situations in which a court is permitted to calculate damages using the "entire market value rule," whereby a court would base a reasonable royalty on the full price of the product being sold, rather than the value of the particular patented component.[20] But the result has been to leave courts almost entirely at sea and at the mercy of the parties' experts when attempting to assess damages.[21] In combination, the elimination of the 25% rule and the limits placed on the entire market value rule have left courts guessing about both (1) the proper royalty rate, and (2) the sales figure (the "royalty base") to which it should apply that royalty rate. It is not surprising, then, that courts have largely floundered when attempting to estimate reasonable royalties.

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instead. Christopher B. Seaman, *Reconsidering the Georgia-Pacific Standard for Reasonable Royalty Patent Damages*, 2010 B.Y.U. L. Rev. 1661, 1676–77 (2010); *see, e.g.*, Monsanto Co. v. McFarling, 488 F.3d 973 (Fed. Cir. 2007).

[16] The Patent Act allows plaintiffs to select among the two options. 35 U.S.C. § 284; Omri Ben-Shahar, *Damages for Unlicensed Use*, 78 U. CHI. L. REV. 7 (2011).

[17] *See infra* Part I.

[18] These factors derive their name from Georgia-Pacific v. United States Plywood Corp., 318 F. Supp. 1116 (S.D.N.Y. 1970). Although Georgia-Pacific is merely a district court case, the Federal Circuit has adopted it as the touchstone for computing reasonable royalty damages.

[19] Uniloc USA, Inc. v. Microsoft Corp, 632 F.3d 1292 (Fed. Cir. 2011).

[20] VirnetX, Inc. v. Cisco Sys., Inc., 767 F.3d 1308 (Fed Cir. 2014). Courts may use the entire market value rule only when "it can be shown that the patented feature drives the demand for an entire multi-component product . . . ." LaserDynamics, 694 F.3d at 67.

[21] For instance, it is much easier to price an entire product—which is being sold in the market—than a particular component of that product, which might never be sold on its own for market value. *See* Brian D. Coggio, *Damage Control-What an Adjudged Infringer Can Do to Minimize the Resulting Damage*, 15 AIPLA Q.J. 250, 296 (1987) ("However, the relative difficulty of establishing apportionment will operate in favor of the application of the entire market value rule.").

In the face of these difficulties, it is natural for courts to seek an alternative means of estimating reasonable royalties. Again, one of the principal disadvantages of the turn away from injunctive relief as a patent remedy is that it robs courts of the opportunity to have the parties decide the value of a patent through arms-length bargaining. An alternative market mechanism that allows courts to use private valuations to accurately gauge patent damages would be of obvious value. The solution that courts have arrived at is to use existing licenses, typically granted by the plaintiff to third parties, as evidence of the proper measure of damages. A patent license offers the elusive holy grail: an arms-length transaction between two private parties that places a monetary value on the patent. Indeed, the measure of value provided by an existing license is the *very first* factor listed by *Georgia-Pacific* for use in calculating reasonable royalty damages.[22] Courts have relied upon existing licenses in calculating damages for decades,[23] and the practice has grown even more prominent in recent years.[24] At first blush this approach makes sense; if the courts must reconstruct a hypothetical royalty negotiation, actual pre-existing royalty agreements might well constitute the best available evidence of the contours of such a negotiation. Not surprisingly, scholars, commentators, and courts nearly unanimously bless the use of existing licenses to calculate patent damages.[25]

But the use of existing licenses to measure reasonable royalty damages creates three significant and distinct problems. The first is that it relies upon private information, available only to the parties to the first licensing agreement, about the plaintiff's probability of success in litigation. Every agreement to license a patent is necessarily made in the shadow of the threat of litigation.[26] If a patent holder had no means to enforce its

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[22] *Georgia-Pacific Corp.*, 318 F. Supp. at 1120 ("1. The royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.").

[23] Nickson Indus., Inc. v. Rol Mfg. Co., 847 F.2d 795 (Fed. Cir. 1988).

[24] *See, e.g.*, *VirnetX, Inc.*, 767 F.3d at 1330–31; Apple Inc. v. Motorola, Inc., 757 F.3d 1286 (Fed. Cir. 2014); Versata Software, Inc. v. SAP Am., Inc., 717 F.3d 1255 (Fed. Cir. 2013); LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51 (Fed Cir. 2012) (validating the use of some licenses in determining damages and rejecting others); Finjan, Inc. v. Secure Computing Corp., 626 F.3d 1197, 1212 (Fed.Cir.2010); Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201; Waterton Polymer Products USA, LLC v. EdiZONE, LLC, 2014 WL 5782710 (D. Utah 2014); Ultratec, Inc. v. Sorenson Commc'ns, Inc., No. 13-CV-346-BBC, 2014 WL 5080411 (W.D. Wis. Oct. 9, 2014); Gen-Probe Inc. v. Becton Dickinson & Co., 899 F. Supp. 2d 971 (S.D. Cal. 2012); ReedHycalog, UK, Ltd. v. Diamond Innovations Inc., 727 F. Supp. 2d 543 (E.D. Tex. 2010); Datatreasury Corp. v. Wells Fargo & Co., No. CIV.A. 2:06-CV-72 DF, 2010 WL 903259, at *1 (E.D. Tex. Mar. 4, 2010); Spreadsheet Automation Corp. v. Microsoft Corp., 587 F. Supp. 2d 794 (E.D. Tex. 2007).

[25] *See* sources cited in *supra* note 11.

[26] *See infra* Part II.A.

patent, no licensee would pay royalties for a license. Accordingly, any negotiation over royalties will necessarily be based upon the outcome the parties expected should the case go to trial.[27] The parties will have to account for the possibility that courts will find the patent invalid or not infringed—the possibility, that is, that the licensee will not be forced to pay anything.

This highlights the second, closely related problem with using existing licenses to calculate reasonable royalty damages: the procedure is ineluctably circular.[28] Licensing agreements are based upon expected damages awards at trial. But if damages awarded at trial are in turn based upon licensing agreements, it creates an unconquerable chicken-and-egg problem. Judicial error with regard to the appropriate measure of damages will produce smaller royalty amounts outside of litigation, which will in turn lead to lower judicial calculations of damages, which will then beget even smaller royalty payments outside of litigation, and so forth.

The third problem stemming from the use of existing licenses is common to any setting in which a contract between two parties, *A* and *B*, will affect the rights of a third party, *C*. *A* and *B* will always have an incentive to distort their contract so as to maximize their joint gains against *C*.[29] For instance, suppose that a patent owner *P* understands that the licensing agreement it reaches with a licensee L_1 will affect the damages it obtains in litigation against a second subsequent licensee, L_2, or the royalty it can negotiate with a third subsequent licensee, L_3. *P* has a strong incentive to inflate the value of its agreement with L_1, perhaps in exchange for providing L_1 with something else of value. Courts have to be vigilant in policing licensing agreements for extraneous considerations before using those agreements to estimate damages. At the same time, if courts are too particular in requiring that an agreement include nothing but a license to use a patented technology, they may find few existing licenses that can serve as sound bases for calculating damages.

In light of these problems, the question is what role existing licenses should play in judicial damages calculations. It would seem counter-productive to throw away information about patent valuations when such information is so scarce to begin with. But without some means of accounting for the context within which parties negotiate licenses, there is doubt as to whether existing licenses can provide reliable evidence of

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[27] *See* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1992, 1993 (2007); William M. Landes, *An Economic Analysis of the Courts*, 14 J.L. & ECON. 61 (1971); Richard A. Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. LEGAL STUD. 399 (1973); *see also* John P. Gould, *The Economics of Legal Conflicts*, 2 J. LEGAL STUD. 279 (1973).

[28] *See infra* Part II.B.

[29] *See infra* Part II.C.

reasonable royalty damages. The final Part considers a variety of potential solutions to these problems. Though several of these solutions show promise, none comes close to being a complete answer. It may well be that courts have no choice but to treat existing licenses as providing only the most limited of guidance when calculating damages at trial.

This Article proceeds in three Parts. Part I describes the courts' practice of using existing licenses to gauge reasonable royalty patent damages and outlines the rules that courts have developed to guide that practice. Part II analyzes the three problems inherent to using existing licenses to calculate reasonable royalties: courts' inability to access the private information that will unlock the license; the circularity involved in relying upon existing licenses in damages calculations; and the incentives to distort contracts when a contract between two parties is used to value property or legal rights in a manner that affects a third party. Part III considers a variety of potential mechanisms for solving these problems but concludes that the difficulties they create cannot be entirely ameliorated. The Article closes with an inquiry into whether there remains any viable role for existing licenses in the setting of reasonable royalty damages at trial.

I.   LICENSING AGREEMENTS AND REASONABLE ROYALTY DAMAGES

When a patent plaintiff prevails at trial but cannot prove lost profits or damages—or does not wish to try—the adjudicating court must instead determine the reasonable royalty that an infringer should have paid the patent holder to license the patent.[30] The court must imagine a hypothetical negotiation between the plaintiff and the defendant, conducted at the moment before the defendant's infringement began,[31] and determine the royalty the two parties would have settled upon after bargaining at arm's length. The court must further assume, for purposes of this hypothetical negotiation, that both parties know the patent to be valid and infringed—as the court has just found it to be.[32] This inquiry is both hypothetical and well

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[30] 35 U.S.C. § 284 ("Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty . . . .").

[31] *See, e.g.,* Applied Med. Res. Corp. v. U.S. Surgical Corp., 435 F.3d 1356, 1363–64 (Fed.Cir.2006) ("[T]he hypothetical negotiation relates to the date of first infringement."); State Indus., Inc. v. Mor–Flo Indus., Inc., 883 F.2d 1573, 1580 (Fed.Cir.1989) ("The determination of a reasonable royalty . . . [is based] on what a willing licensor and licensee would bargain for at hypothetical negotiations on the date infringement started.").

[32] *Lucent*, 580 F.3d at 1301; *see also* Paul M. Janicke, *Contemporary Issues in Patent Damages*, 42 AM. U. L. REV. 691, 722–23 (1993).

after the fact, and it requires the court to forget many facts that it has learned and imagine many others that it cannot know.[33] It is naturally fraught with both error and complication.[34] The Federal Circuit[35] has compounded the situation by providing only amorphous guidance to the lower courts. Courts awarding a reasonable royalty are instructed to apply the fifteen-part test enumerated in *Georgia Pacific*.[36] Almost needless to say, lower courts have found this to be anything but a straightforward task.[37]

It is thus not surprising that courts have grasped for sources of market information, believing them superior to the court's own speculation and hypothesizing. *Georgia-Pacific* itself encourages this; the very first *Georgia-Pacific* factor is "[t]he royalties received by the patentee for the licensing of the patent in suit,"[38] and the second is "the rates paid by the licensee for the use of other patents comparable to the patent in suit."[39] Existing licenses—whether granted by the plaintiff for access to the patent technology, or purchased by the defendant for similar technologies—are thus front and center in reasonable royalty calculations.

But this does not mean that all licenses are treated equally. Federal courts have evolved a set of rules to determine whether an existing license will be admitted into evidence and, if admitted, what weight it will be afforded.[40] First and foremost is the sensible rule that the existing license in

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[33] The difficulties that courts encounter in trying to reconstruct this hypothetical negotiation are further detailed in Parts II and III.

[34] *See* ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 869 (Fed. Cir. 2010) ("Determining a fair and reasonable royalty is often . . . a difficult judicial chore, seeming often to involve more the talents of a conjurer than those of a judge."); *see also* Merritt J. Hasbrouck, *Protecting the Gates of Reasonable Royalty: A Damages Framework for Patent Infringement Cases*, 11 J. MARSHALL REV. INTELL. PROP. L. 192, 193 (2011) ("Although the courts have made some progress in other areas of patent law, one troublesome area remains: the appropriate standard for determining a reasonable royalty damages amount.").

[35] The Federal Circuit has exclusive appellate jurisdiction from final decisions of district courts in the area of patent law. 28 U.S.C § 1295(a).

[36] Georgia-Pacific v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

[37] *See, e.g.*, Apple, Inc. v. Motorola, Inc., 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012) ("This is a formidable list . . . . And could a judge or a jury really balance 15 or more factors and come up with anything resembling an objective assessment?"); *see also* Bo Zeng, *Lucent v. Gateway: Putting the "Reasonable" Back into Reasonable Royalties*, 26 BERKELEY TECH. L.J. 329, 333 (2011) ("In essence, Georgia-Pacific's hypothetical, individually-negotiated approach complicated reasonable royalty determinations . . . .").

[38] *Georgia-Pacific Corp.*, 318 F. Supp. at 1120.

[39] *Id.*

[40] *See* Zelin Yang, *Damaging Royalties: An Overview of Reasonable Royalty Damages*, 29 BERKELEY TECH. L.J. 647, 668–69 (2014) ("Although reasonable arguments could be made for each of these factors to be the starting point in determining a royalty rate, the

question must involve a patent very similar (if not identical) to the patent in suit.[41] A comparison is not valuable if it is not apples-to-apples, or close to it. Thus, existing licenses that bundle together multiple patents, or a patent and something else of value (such as a trademark or trade secret), are typically not accepted as valid comparisons.[42] Similarly, courts disfavor licenses for unrelated technology, on the theory that they may be more or less valuable than the technology in the patent at suit.[43] In addition, courts generally frown upon the use of one type of license—for instance, a lump sum license—to calculate a different type of license, such as a running royalty in which the defendant pays per unit sold over time.[44] In practice, this means that licenses granted by the patent owner *for the same patent* are more commonly used in calculating damages than licenses taken by the defendant on similar technologies.[45]

Federal Circuit has increased the level of scrutiny in assessing whether licenses are truly 'comparable.'").

[41] *See* Lucent Technologies, Inc. v. Gateway, Inc., 580 F.3d 1301, 1329 (Fed. Cir. 2009) ("damages award cannot stand solely on evidence which amounts to little more than a recitation of royalty numbers . . . particularly when it is doubtful that the technology of those license agreements is in any way similar to the technology being litigated here."); *see also* LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 79 (Fed. Cir. 2012) ("When relying on licenses to prove a reasonable royalty, alleging a loose or vague comparability between different technologies or licenses does not suffice . . . . We insisted that the 'licenses relied upon by the patentee in proving damages [be] sufficiently comparable to the hypothetical license at issue in suit.'") (quoting *Lucent Technologies, Inc.*, 580 F.3d at 1325).

[42] *See* ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 873 (Fed. Cir. 2010) ("In sum, the district court erred by considering ResQNet's re-bundling licenses to significantly adjust upward the reasonable royalty without any factual findings that accounted for the technological and economic differences between those licenses and the ′075 patent."); *see also* John Elmore, *The Technological Comparability of Patent License Agreements*, 46 LES NOUVELLES 115, 116 (2011) ("[C]ase law cautions that patent license agreements providing substantial non-patent benefits or multiple patents may not be comparable to a "straight" patent license.").

[43] *See ResQNet.com*, 594 F.3d at 869 ("This court has long required district courts performing reasonable royalty calculations to exercise vigilance when considering past licenses to technologies *other* than the patent in suit . . . . Any evidence unrelated to the claimed invention does not support compensation for infringement but punishes beyond the reach of the statute."); *see also* Zeng, *supra* note 37, at 356 ("The Federal Circuit has eliminated unrelated past licenses from consideration in patent damage analyses and should do so because every licensing agreement is unique.").

[44] *See, e.g.*, ePlus, Inc. v. Lawson Software, Inc., 764 F. Supp. 2d 807 (E.D. Va. 2011).

[45] *See* Thomas F. Cotter, *Four Principles for Calculating Reasonable Royalties in Patent Infringement Litigation*, 27 SANTA CLARA COMPUTER & HIGH TECH. L.J. 725, 748 (2011) ("Strictly speaking, then, for a license to be economically comparable it should relate to the same patent or patents at issue"); Roy Weinstein et. al., *Taming Complex Intellectual Property Compensation Problems*, 22 FED. CIRCUIT B.J. 547, 553 (2013) ("In view of *ResQNet* and *Lucent*, comparable licenses can only include licenses to the patent-in-suit

Second, and more important for present purposes, courts[46] and commentators[47] generally disfavor licenses that parties negotiated as settlements to ongoing litigation. Courts have reasoned that litigation distorts the licensing prices that defendants are willing to pay, skewing prices upward.[48] According to these courts, the primary cause of this distortion is the cost of litigating: in order to avoid litigation costs, patent defendants might be willing to pay more than they otherwise would to settle a dispute and license a patent.[49] For many years, courts flatly refused to consider any settlement under threat of litigation as reliable evidence of a patent's value,[50] or at minimum the courts greatly discounted the probative value of such a license.[51] Those types of settlements were often barred from

itself, essentially removing from consideration licenses contemplated under *Georgia-Pacific* Factors 2 and 12.").

[46] *See, e.g.*, Tights, Inc. v. Kayser-Roth Corp., 442 F. Supp. 159 (M.D.N.C. 1977).

[47] *See, e.g.*, Keele, *supra* note 11, at 216 (arguing that licenses negotiated during litigation settlement are highly prejudicial and rarely probative); Tejas N. Narechania & Jackson Taylor Kirklin, *An Unsettling Development: The Use of Settlement-Related Evidence for Damages Determinations in Patent Litigation*, 2012 J. LAW, TECH & POL'Y 1 (2012) (arguing that courts should bar all evidence related to settlement of litigation disputes). A few scholars have argued that licenses negotiated as settlements to litigation should be allowed into evidence when assessing damages, though this remains a minority viewpoint. *See* Conroy et al., *supra* note 11; Michael Chapman, *Using Settlement Licenses in Reasonable Royalty Determinations*, 49 IDEA: The Intellectual Property Law Review 313 (2009).

[48] Matter of Mahurkar Double Lumen Hemodialysis Catheter Patent Litig., 831 F. Supp. 1354, 1379 (N.D. Ill. 1993) ("[P]eople may settle patent litigation to reduce the costs of the legal process. The terms of a settlement reflect these costs as well as the parties' estimates about the probable outcome on the merits if the case proceeds . . . ."); Keele, *supra* note 11, at 205–06 (noting the effect of litigation costs on settlement value).

[49] Lumen View Tech., LLC v. Findthebest.com, Inc., 24 F. Supp.3d 329, 336 (S.D.N.Y. May 30, 2014) ("Lumen's motivation in this litigation was to extract a nuisance settlement from FTB on the theory that FTB would rather pay an unjustified license fee than bear the costs of the threatened expensive litigation."); *Steering Committee Report*, 1989 DUKE L.J. 811, 823 (1989) ("[T]he threat of unreimbursable litigation costs can give weak claims a nuisance settlement value they do not deserve."); J.P. Mello, *Technology Licensing and Patent Trolls*, 12 B.U. J. SCI. & TECH. L. 388, 397 (2006) ("Patent trolls typically demand licenses that are significantly less than the expected cost that each target company will incur in litigation. Thus, many target companies opt for the economically efficient path and pay a license fee to the patent troll rather than incur litigation costs.").

[50] *See, e.g.*, FED. R. EVID. 408; Rude v. Westcott, 130 U.S. 152, 164 (1889) ("[A] payment of any sum in settlement of a claim for an alleged infringement cannot be taken as a standard to measure the value of the improvements patented, in determining the damages sustained by the owners of the patent in other cases of infringement."); PATENT LAW DAMAGES & PRACTICE § 3.17 (2014).

[51] *See, e.g.*, Deere & Co. v. Int'l Harvester Co., 710 F.2d 1551, 1557 (Fed. Cir. 1983) ("[A]s the White license was negotiated against a backdrop of continuing litigation and [the defendant's] infringement of the Schreiner patent, the district court could properly discount the probative value of the White license with regard to a reasonable royalty.").

evidence. However, in the 2010 case *ResQNet v. Lansa*,[52] the Federal Circuit appeared to invite consideration of licenses negotiated as settlements to litigation, though they would be awarded less evidentiary weight.[53] Since 2010, courts have occasionally considered licenses negotiated during litigation as indicators of patent value.[54] By and large, however, courts have continued to express a strong preference for licenses negotiated "in the wild"—outside of litigation.[55] These licenses form the bulk of sources to which courts have turned for guidance in setting reasonable royalty damages.[56]

LaserDynamics v. Quanta Computer provides an illustrative example.[57] There, the parties introduced into evidence twenty-nine prior licenses of the patent in suit.[58] On appeal, the Federal Circuit noted that the "vast majority" of these twenty-nine licenses had been negotiated outside of litigation, and that those licenses provided the most reliable evidence of the true value of the patent.[59] The court then singled out for disapprobation a license negotiated by a firm named BenQ that had arisen under unusual circumstances:

> This settlement agreement was executed within two weeks of the anticipated trial against BenQ. . . . By the time of the settlement, BenQ had been repeatedly sanctioned by the district court for discovery misconduct and misrepresentation. The district court had

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[52] ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 870 (Fed. Cir. 2010).

[53] *Id.* at 870–71.

[54] *E.g.*, Volumetrics Med. Imaging, LLC v. Toshiba Am. Med. Sys., Inc., No. 1:05CV955, 2011 WL 2470460, at *14 (M.D.N.C. June 20, 2011); Small v. Nobel Biocare USA, LLC, 808 F. Supp. 2d 584, 592 (S.D.N.Y. 2011); Automated Merch. Sys. Inc. v. Crane Co., 279 F.R.D. 366, 373 (N.D. W. Va. 2011).

[55] *E.g.*, Ravo v. Covidien LP, No. CIV.A. 11-1637, 2014 WL 5439787, at *7 (W.D. Pa. Oct. 24, 2014) ("Settlement agreements are generally not relevant 'because in the usual course they do not provide an accurate reflection of what a willing licensor would do in an arm's length transaction.'") (citing LaserDynamics v. Quanta Computer, 694 F.3d 51, 77–78 (Fed. Cir. 2012)); Atlas IP, LLC v. Medtronic, Inc., No. 13-CIV-23309, 2014 WL 5741870, at *6 (S.D. Fla. Oct. 6, 2014) (refusing to consider a license negotiated during litigation); Sentius Int'l, LLC v. Microsoft Corp., No. 5:13-CV-00825-PSG, 2015 WL 451950, at *12 (N.D. Cal. Jan. 27, 2015) (same). Commentators, even those who have advocated giving non-zero weight to litigation settlements, have expressed similar preferences for non-litigation licenses. *See* Conroy et al., *supra* note 11, at 302 (suggesting that licenses negotiated as settlements to litigation should be admitted but arguing that they are less probative than licenses negotiated outside of litigation); Taylor, *supra* note 11, at 114 (same); Keele, *supra* note 11, at 207 (same).

[56] Yang, *supra* note 40, at 669.

[57] 694 F.3d 51 (2012).

[58] *Id.* at 78.

[59] *Id.*

allotted BenQ one-third less time than [the patent owner] for *voir dire,* opening statement, and closing argument, had awarded attorneys' fees to [the patent owner] for bringing the sanctions motion, had stricken one of BenQ's pleaded defenses, and had sanctioned BenQ $500,000.00 as an additional punitive and deterrent measure.[60]

Perhaps not surprisingly, BenQ agreed to license the patent for a great deal more money than any of the other licensees. BenQ paid $6 million, while none of the other licenses exceeded $1 million.[61] The Federal Circuit held that the district court had abused its discretion in admitting the BenQ license into evidence.[62] It declared that the "unique coercive circumstances" surrounding this license made it a particularly unreliable gauge of the patent's value.[63]

There can be little doubt that BenQ's setbacks in its litigation against LaserDynamics (the patent owner) contributed to its larger licensing figure. Had BenQ not been embroiled in litigation against LaserDynamics, and had it not been faring so poorly, it would very likely have settled for much less—probably $1 million or less, in line with the other licensees. Nonetheless, I wish to suggest that the Federal Circuit had it exactly backwards: the BenQ license, and not the other twenty-eight licenses, was the most accurate indication of the "true" value of the patent. The court should have admitted the BenQ license and excluded the others, or at least afforded them little weight. More generally, courts' approach to using existing licenses to determine patent damages at trial is both incoherent and backwards—a rare combination. Courts misunderstand patent licenses at their foundation and in so doing have devised doctrines that are not merely misguided, but counterproductive. The next Part explains how courts have gone astray, and the final Part investigates what might be done to correct them.

II.   THREE BARRIERS TO USING EXISTING LICENSES

A.   Existing Licenses and Private Information

No one would ever license a patent absent the threat of litigation. If a patent holder could not threaten to enforce its patent against a putative

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[60] *Id.* at 58.

[61] *Id.*

[62] *Id.*

[63] *Id.* at 78.

licensee in court, the licensee would have no reason to negotiate a license in the first place.[64] Patent licenses are best understood as civil settlements in anticipation of possible litigation.[65]

Accordingly, the licensing fee for a given patent will depend upon the parties' expected outcomes at trial.[66] That is not to say that licensing amounts are driven *only* by expected trial outcomes. The cost of going to trial will factor into the parties' calculations as well, and thus in some cases patent holders may be able to obtain licensing fees greater than the expected outcome at trial.[67] But expected trial outcomes will necessarily play a significant role. To win at trial, the plaintiff has to show both that the patent is valid and that the defendant infringed the patent. Thus the set of potential trial outcomes includes the possibility that the patent will be found invalid, or that the court will find that the defendant did not infringe the patent, and thus that there will be no award of damages.[68] In formal terms, the plaintiff's expected outcome at trial is $p \times d - c$, where p is the probability that the patent will be held valid and enforced, d is the likely amount of damages the court will assess, and c is the cost of litigation. Conversely, the defendant's expected payout is $p \times d + c$. The plaintiff will be willing to grant a license—that is, settle—for any amount greater than $p \times d - c$, while the defendant will be willing to purchase a license for any amount less than $p \times d + c$. Accordingly, if the two parties are able to agree upon a license, it

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[64] Keele, *supra* note 11, at 205 ("Royalties are usually paid to avoid litigation--most people who thought that they could infringe a patent with impunity would likely do so."); Dov Greenbaum, *Academia to Industry Technology Transfer: An Alternative to the Bayh-Dole System for Both Developed and Developing Nations*, 19 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 311, 388 (2009) ("…with no potential enforcement by the owner of the IP, potential licensees may see no incentive to ever license the patent; infringing at will."); Brian Fung, *The Man Who Invented Priceline.com Wants to Shake Up America's Approach to Patents*, WASHINGTON POST, Jan. 2, 2015, *available at* http://www.washingtonpost.com/blogs/the-switch/wp/2015/01/02/the-man-who-invented-priceline-com-wants-to-shake-up-americas-patents/ ("I learned very quickly that nobody wanted to license my solutions unless I threatened to sue them—and in most cases, when I actually sued them . . . .").

[65] *See infra* Part II.B (explaining that there is no reason to license a patent other than to avoid litigation); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1992, 1993 (2007) (analyzing licenses as litigation settlements).

[66] Keele, *supra* note 11, at 205–06.

[67] Lemley & Shapiro, *supra* note 65, at 2000–09 (analyzing mechanisms that can drive licensing prices upward).

[68] *Id.* ("Like any other settlement, the amount a party is willing to pay or accept for a litigation license . . . generally consists of three core components: the likelihood of liability . . . ; the expectation value of the damages . . . ; and the party's expected litigation costs . . . .").

will be for a royalty R such that $p \times d - c < R < p \times d + c$.[69] The midpoint of that range is $p \times d$, and thus the parties should be expected to agree upon a royalty in the vicinity of $p \times d$: $R \approx p \times d$.

By way of example, imagine that a patent holder (P) and a putative licensee (L_1) are negotiating a license over a particular piece of patented technology. Suppose the parties recognize that a court is only 25% likely to hold the patent valid and infringed by L_1. Suppose further that the parties agree that if the patent is found valid and infringed, the court is likely to assess $20 million in reasonable royalty damages. Finally, suppose that the patent litigation will cost each party $2 million. The patent holder's expected outcome from trial is $20 million × 25% – $2 million = $3 million. The putative licensee's expected trial outcome is –$20 million × 25% – $2 million = –$7 million. P would be willing to grant a license for any amount greater than $3 million; L_1 would be willing to pay anything less than $7 million. The parties should be expected to negotiate a reasonable royalty near the midpoint of those two figures: approximately $5 million.[70] The license that the parties eventually negotiate will be driven by the expected damages at trial as well as the likelihood that the patent will be found valid and infringed in the first instance.[71]

Now imagine that P sues a second putative infringer (or licensee) L_2 for infringing the same patent. The case goes to trial, and P wins: the court holds that the patent is valid and has been infringed by L_2. In order to determine damages, the court is expected to assess the outcome of a hypothetical negotiation between P and L_2 in which the parties agree upon a reasonable royalty. Under governing Federal Circuit law, the court must assume that this hypothetical negotiation took place immediately before the moment of infringement—before L_2 began its infringing activities.[72] Critically, however, the court must also assume that the patent is valid and infringed and that both parties know it to be valid and infringed.[73] In that sense, the trial has officially resolved any ambiguity or uncertainty that

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[69] Landes, *supra* note 27, at 67 (analyzing a model of settlement in which litigation costs create bargaining space within which parties can settle); Posner, *supra* note 27, at 414 (same).

[70] Posner, *supra* note 27, at 414 (analyzing this dynamic).

[71] *See* Taylor, *supra* note 11, at 115 ("Negotiated royalties thus include discounts based on risk borne by the patent owner associated with proving liability, relief, and enforceability . . . .").

[72] Lucent Technologies, Inc. v. Gateway, Inc., 580 F.3d 1301, 1324 (Fed. Cir. 2009) ("[T]he hypothetical negotiation or the 'willing licensor-willing licensee' approach, attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.").

[73] *Id.* at 1325 ("The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed."); *see also* LaserDynamics v. Quanta Computer, 694 F.3d 51, 77 (2012) (". . . validity and infringement of the patent not being disputed.").

previously surrounded the patent. As a matter of law, *P* has prevailed over *L₂*, with all of the attendant consequences.[74]

The court is thus faced with the task of reconstructing the price that *L₂* would have paid to license the patent from *P* *if both parties had agreed that the patent was valid and infringed*. It is natural for a court to look to the existing license between *P* and *L₁* for guidance. But when that license was negotiated, the parties could not have been certain that the patent was valid and infringed—or, at minimum, there is no way for a court to know whether *P* and *L₁* believed that the patent was valid and infringed and no reason to believe that they viewed it as a certainty. That is private information, inaccessible to the court. *P* and *L₁* might have believed that it was 100% likely or nearly 100% likely that the patent was valid and infringed; or they might have believed it to be 50% likely, or 25% likely, as in this hypothetical.

Accordingly, the court should not simply use the licensing figure from the agreement between *P* and *L₁*—$5 million—when calculating damages in the *P v. L₂* litigation. The parties negotiated the $5 million royalty with the understanding that there was some (likely non-zero) probability that the patent would not be found valid and infringed. Now that *P* has prevailed in its suit against *L₂*, that probabilistic inquiry has been resolved in favor of *P*, and the court is expected to assess damages as if the parties were negotiating under the belief that the patent was valid and infringed. If the court is to use the license between *P* and *L₁* as evidence of damages in the litigation against *L₂*, it must determine the fee *P* and *L₁* would have agreed upon had they believed that the patent was 100% likely to be valid and infringed.

But the court cannot determine this hypothetical licensing fee without knowing what *P* and *L₁* believed were their probabilities of success at trial. That is, the court is attempting to determine *d*—the parties' view of

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[74] Most scholars and practitioners of patent law understand that patents are probabilistic entities through and through. Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75 (2005) (summarizing and analyzing this mode of thinking about patents). Patents that are valid with 100% certainty or infringed by a given technology with 100% certainty are like the Loch Ness Monster: various people claim to have seen them, but most informed parties realize that they cannot possibly exist. Most patent scholars would say the same thing about even patents that have been adjudicated. Just because one court (or jury) has found a patent valid and infringed is not a necessary guarantee that a different court or jury would have reached the same result. *See* David L. Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223 (2008) (demonstrating that even very experienced trial courts have their patent decisions overruled at a high rate). Nonetheless, it is inherent to a court's self-image and the very nature of a trial that the law would view the decision of a court as final and determinative—at least with respect to the parties and issues involved in that case—and would treat it as eliminating any ambiguity accompanying the legal questions presented.

what damages a court would assess if the patent were found valid and infringed—by observing R, the actual royalty that the parties negotiated. But d is not the same as R; the negotiated royalty R would normally be approximately $p \times d$, where p is the probability that the patent will be found valid and infringed. By simple rearrangement, $d \approx R / p$. That is to say, a court cannot use an existing royalty (R) to determine what damages it should assess (d) without knowing p, the probability of success that the parties assigned to the patent.[75] And there is almost no way for the court to reliably determine p, absent unusual circumstances (to be discussed later). The expected probability of success on the merits, p, is the parties' private information, unknowable to the court. There is no way for the court to determine what probabilities P and L_1 assigned to the patent litigation merely from scrutinizing the licensing agreement. The court can hardly force representatives of the two sides to testify to their internal perceptions of the patent at the time of the settlement.[76] And without that information the court cannot use the existing license to reliably estimate the value of the patent. All it can know is that P and L_1 valued the patent—if valid and infringed—at *no less* than $5 million. The existing license thus provides a floor for valuing the patent, not a reasonable estimate.

It is easy to see that the court would err if it simply assessed damages against L_2 equal to the amount of the prior license—here, $5 million.[77] Consider, for example, a subsequent putative infringer, L_3, who is accused of infringement by P. L_3 would understand that if it chose to litigate against P and lost, it would likely face damages of $5 million—the amount of the licensing agreement between P and L_1. Outside of litigation, it would be willing to pay P a royalty equal to $5 million, discounted by the probability that P will win at trial. Imagine that P's probability of success in

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[75] Of course, it is entirely possible that the two parties involved in a license—P and L_1—did not actually agree on the probability that the patent was valid and infringed. P might have thought that the patent was 50% likely to be valid and infringed and believed that a court would award it $10 million if it prevailed at trial, while L_1 might have believed that the patent was only 25% likely to be valid and infringed but anticipated a $20 million verdict if P prevailed. The two parties would have arrived at the same licensing figure through different routes. (If they arrive at different licensing figures, with P's substantially higher, then they will not be able to negotiate a license and will end up in litigation.)

     If this is the case, then the existing license is an even *less* valuable guide to the damages calculation. Instead of it being difficult or impossible for the court to determine the parties' joint belief about the proper amount of damages, *there is no joint belief*. The court might as well ignore the license. In this respect, the analysis that follows stacks the deck *in favor* of using existing licenses to assess patent damages. If this analysis nonetheless compels the conclusion that existing licenses are not reliable guides to patent damages, it will not be for lack of having granted those licenses the benefit of the doubt.

[76] This point is developed further in *infra* Part III.B.

[77] *Contra* Cotter, *supra* note 45, at 752-53 (2011) (arguing precisely the opposite).

a suit against L_3 is still only 25%. (The litigation between P and L_2 might have established that the patent is almost certainly valid, but L_3's product might not infringe.[78]) In this case, L_3's expected outcome, should it go to trial, is only $5 million $\times$ 25% = $1.25 million. P and L_3 will likely settle for approximately that amount. This stands in stark contrast to the $5 million license that P negotiated with L_1. The only thing that has changed to drive down the licensing price of the patent is the court's misinterpretation of the licensing agreement between P and L_1.[79]

Stated more formally, P and L_1 negotiated a royalty R where $R \approx d \times p$. Then, the court in P v. L_2 litigation erred by awarding damages in the amount of R, rather than attempting to determine d. Now, L_3 recognizes that if it loses at trial, it will only be forced to pay $d \times p$. Accordingly, it is only willing to settle for $(d \times p) \times p$, or $d \times p^2$. The court's failure to understand that prior licenses are discounted by the probability of success at trial, and its use of such licenses as guidelines for subsequent damages awards, artificially reduces the value of the patent and the royalties that patent holders will receive.[80]

B.   Circularity

The preceding analysis should make clear that the use of past licenses to determine patent damages is plagued by a fundamental problem of circularity. Licenses are necessarily negotiated in the shadow of trial: the royalty depends upon the parties' expected outcomes at trial.[81] When courts use existing licenses to determine damages at trial, the tiger is chasing its

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[78] The fact that a patent has been judged valid in one trial does not necessarily mean that it must or will be judged valid in another. Under the doctrine of non-mutual collateral estoppel, a patent plaintiff's judgment against one party is not binding against a different party who was not involved in the initial case. <u>Shelcore, Inc. v. Durham Indus., Inc.</u>, 745 F.2d 621, 627 (Fed. Cir. 1984) (Holding that an earlier determination of patent validity had no stare decisis effect); Timothy Denny Greene, *'All Substantial Rights': Towards Sensible Patent Licensee Standing*, 22 FED. CIR. B.J. 1, 14-19 (2012). However, the initial validity judgment is still persuasive precedent, and so as a practical matter a patent that has once been found valid is likely to be found valid again. <u>Gillette Co. v. S.C. Johnson & Son, Inc.</u>, 919 F.2d 720, 723 (Fed. Cir. 1990) ("The fact that the validity of those claims has previously been upheld in an earlier litigation is also to be given weight, though not stare decisis effect.").

[79] *See* Cotter, *supra* note 45, at 732.

[80] *See, e.g.*, VirnetX v. Cisco Sys, Inc., 767 F.3d 1308, 1330-31 (Fed. Cir. 2014) (making this error); Versata Software, Inc. v. SAP Am., Inc., 717 F.3d 1255, 1255(Fed. Cir. 2013) (same); LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 66 (Fed. Cir. 2012) (same); Finjan, Inc., v. Secure Computing Corp., 626 F.3d 1197, 1212 (Fed. Cir. 2010) (same); Ericsson, Inc. v. D-Link Sys. Inc., 773 F.3d 1201 (Fed. Cir. 2014) (same).

[81] *Id.* at 2021 (discussing the effects of bargaining in the shadow of trial on licensing behavior).

own tail. Trial outcomes cannot depend on licenses if licenses depend on trial outcomes.

Treating an existing licensing agreement as if it represents a true valuation of a *valid and infringed* patent will force the patent into an artificial downward spiral in value. A license will drive expected trial outcomes lower, which will in turn drive future licenses lower, which will in turn drive future expected trial outcomes even lower, and so forth. This type of positive feedback loop is unsustainable and will lead to ever greater distortions.

This spiral will result even if the patent is never litigated. It relies only on parties correctly understanding how a court will behave and how it will treat existing licenses. Consider the previous example, in which L_1 agrees to license P's patent for $5 million, with both parties calculating that P is approximately 25% likely to succeed at trial and the court likely to award $20 million in damages if P prevails. Suppose that P now approaches L_2 and threatens litigation if L_2 does not agree to license the patent. If both P and L_2 understand that the court will use the licensing agreement between P and L_1 to set damages in the trial, then the two parties will recognize that L_2 faces only $5 million in potential liability if it goes to trial. Accordingly, if P is 25% likely to prevail at trial, L_2 will agree to license the patent for approximately $1.25 million.

Now suppose that P approaches L_3 and again threatens litigation if L_3 does not agree to license the patent. What royalty can they be expected to negotiate? There are now two existing licenses: the $5 million license between P and L_1 and the $1.25 million license between P and L_2. Suppose that L_3, like L_2 and L_1, is 25% likely to be held liable for infringement in the event of a trial. What liability would L_3 face? If the court were (incorrectly) treating existing licenses as indicative of a patent's value, it would likely assess damages in an amount between $1.25 million (the less expensive license) and $5 million (the more expensive license). The midpoint of that range—$3.125 million—is a reasonable estimate. If P and L_3 understand this fact, then they would likely negotiate a license for approximately 25% of $3.125 million, or approximately $780,000.[82] As P negotiates with L_1, L_2, and L_3, the value of the patent has decreased from $5 million to $1.25 million to $780,000, all without the patent ever seeing the inside of a courtroom.[83] The downward spiral is driven entirely by the parties' belief

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[82] $781,250, to be exact.

[83] These numbers are of course merely hypothetical; the precise metes and bounds of this downward spiral will depend on the values at issue in any given case. The more general point is that this decay in value will occur in *any case* in which the patent owner is less than 100% certain to prevail. In practice, that means that it will occur in every case; no patent owner can ever be completely assured of victory.

that the court will improperly rely upon prior licenses as evidence of the patent's value.[84]

As much as courts would like to rely upon market measures in estimating damages, there is no reliable route out of this circularity.[85] The reason is that patent licensing fees can only ever be grounded in a threat of suit, and thus in the parties' best estimate of what a court will force them to pay.[86] There is simply no reason to license a patent other than to alleviate the threat of suit. It is not as if any technology is actually being transferred when a patent is licensed; the public patent document already discloses the technology on its face, and a putative licensee can read the patent without licensing it.[87] It is of course possible that the patent holder would transfer technical knowledge along with a license for the patent,[88] and this latent knowledge may well be more valuable than any technical information disclosed by the patent itself.[89] But this transfer amounts to a provision of valuable information and services above and beyond a license for the patent itself. Courts have regularly refused to use licenses that involve a transfer of

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[84] Of course, some scholars have theorized that licensing fees are already too high, driven upward by the patent owner's ability to obtain an injunction or courts' own miscalculations. *See, e.g.*, Lemley & Shapiro, *supra* note 65, at 2019 (analyzing various dynamics that can lead to excessive licensing royalties and patent damages). Some might suggest that the downward spiral caused by misuse of existing licenses is a necessary corrective to this trend. This is not impossible, but it is highly unlikely. If the two effects balance one another, it would be through sheer fortuity. No sound long-term legal regime should rely on courts making *two* types of legal mistake, and hoping that each mistake counteracts the other. It is far better to attempt to correct both mistakes. Here, that means grappling with the problems of private information and circularity endemic to existing licenses.

[85] *Contra* Taylor, *supra* note 11, at 142–43 (suggesting that making certain assumptions about infringement and validity offer a "partial solution" to this circularity). As this section and the sections that follow will explain, there is no egress from this circularity. Indeed, it is the circularity that renders insurmountable the problems created when courts base patent damages on existing licenses.

[86] *See* Mark Schankerman & Suzanne Scotchmer, *Damages and Injunctions in Protecting Intellectual Property*, 32 RAND J. Econ. 199, 200 (2001).

[87] *See* Robin Feldman & Mark A. Lemley, *Does Patent Licensing Mean Innovation?*, at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2565292 (unpublished manuscript 2015) (surveying parties involved in patent licensing and finding that licenses rarely involve the transfer of technical information).

[88] *See* Peter Lee, *Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer*, 100 CAL. L. REV. 1503 (2012) (describing the transfer of tacit information that often accompanies patents).

[89] *See* Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J. L. & TECH. 532 (2012) (surveying scientists on their use of the information disclosed in patents and finding that patents are less-than-perfect disclosure devices).

more than just patent rights as a guide to patent damages in litigation.[90] This is appropriate; if a patent licensing agreement simultaneously involves the transfer of what amounts to a valuable trade secret, it cannot serve as a reliable guide to pricing a patent license that involves no such transfer.[91]

The point is that patent licenses are inherently parasitic on litigation: without the threat of litigation, there would be no licensing. This is why it is incoherent for courts to refuse to consider licenses negotiated during litigation or the threat of litigation. Whether the courts realize it or not, there is no other context in which licenses might arise. If licenses are parasitic upon litigation, litigation cannot also rely upon licenses for guidance. At the heart of judicial practice lies a conceptual impossibility.

What, then, is the "true" value of a patent? The problem, as I have argued, is that there is no inherent value to the patent—it is worth only what a court will force a party to pay. One possible way out of this quagmire is that a patent is worth whatever price the parties would bargain to if the court found the patent valid and infringed and awarded an injunction to the patent holder. But this answer is both unhelpful in practice and untrue in theory. As a theoretical matter, the prices that defendants pay to lift injunctions often reflect holdup costs, assuming the defendants have already invested in producing the infringing good.[92] These holdup costs are an artifact of the plaintiff having the defendant over a barrel, not a true measure of what the defendant would have paid before the infringement began. And in practice, injunctions are sufficiently rare that it is unlikely that a court will any to use as a model. What are the odds that a particular patent plaintiff would have previously won a verdict against another defendant, been granted an injunction, and then licensed the patent to the

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[90] ResQNet.com, 594 F.3d at 870 ("Dr. David based his damages on seven ResQNet licenses, five of which had no relation to the claimed invention. These five re-branding or re-bundling licenses . . . furnished finished software products and source code, as well as services such as training, maintenance, marketing, and upgrades, to other software companies in exchange for ongoing revenue-based royalties.").

[91] Oracle Am., Inc. v. Google Inc., 847 F. Supp. 2d 1178, 1187 (N.D. Cal. 2012) ("Damages experts cannot use noncomparable licenses, with little relationship to the claimed invention or parties-in-suit, as a basis for calculating reasonable royalties."); Axcess Int'l, Inc. v. Savi Technologies, Inc., No. 3:10-CV-1033-F, 2013 WL 6839112, at *8 (N.D. Tex. Jan. 25, 2013) ("With regard to the non-comparable licensing agreements analyzed by Dr. Hakala, the Court is of the opinion that they provide no assistance to his analysis. The Federal Circuit has made clear that '[a]ny evidence unrelated to the claimed invention does not support compensation for infringement but punishes beyond the reach of the statute.' *ResQNet.com, Inc.,* 594 F.3d 869. Therefore, such analysis fails to 'carefully tie proof of damages to the claimed invention's footprint in the market place.'").

[92] Lemley & Shapiro, *supra* note 65, at 2019 (analyzing various dynamics that can lead to excessive licensing royalties and patent damages).

defendant? Given the turn against injunctions—the point with which this article begins—this circumstances must be very uncommon.

Accordingly, it makes sense to think of a patent's value as whatever a court would force a defendant to pay, absent any consideration of existing licenses. That is to say, it is whatever figure a court would arrive at after using the *Georgia-Pacific* factors *other than* the factors that direct a court to consider existing license. These factors include "the nature and scope of the license," the "established profitability of the products," the "utility and advantages of [the patent] over old modes and devices," "the extent to which the infringer has made use of the invention and the value of such use," and so forth.[93] If courts rely upon these economic factors, and licensing fees are based upon these court decisions, there is no circularity. This is the only coherent and practical way to conceptualize the value of a patent. The problem is that it is difficult for courts to estimate these values—hence the desire for market measures in the first place.

Of course, the problem of circularity is not unique to patent law. At a deep level, the value of goods and legal rights in the marketplace will always depend to at least some degree on predicted outcomes in court. Whenever a court uses a market transaction to value a good or a legal right, the potential for circularity exists. This is most evident in negotiations over a surplus, where there is no clear right or wrong answer. For instance, a union and an employer bargaining over wages will sometimes agree to submit the dispute to arbitration. In reaching a decision, the arbitrator will look to agreements that similarly situated parties have reached in the past. Those past agreements, in turn, will depend to at least some degree on what the parties would have expected an arbitrator to decide. Private contracts and arbitration decisions are locked in a circle.[94] (Other legal issues, such as the standard of care in tort law, can similarly give rise to circularities. If the standard of care depends on standard industry practices, and standard industry practices depend on the level of care a court deems necessary, the same type of circularity arises.)

In most cases, however, the influence of judicial decisions on market values is very slight. Imagine a situation in which *A* steals *B*'s bicycle and *B* sues *A* for compensation. If a court finds for B, it will presumably look to the market price of the bicycle to determine the appropriate compensation. At some very deep level, that market price could

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[93] *Georgia-Pacific*, 318 F. Supp. At 1119-20.

[94] This can occur in other contractual contexts as well. *See* Jim Leitzel, Damage Measures and Incomplete Contracts, 20 RAND J. Econ. 92 (1989) (suggesting that courts can create a circularity if they use typical private reliance as a measure of reasonable reliance damages, which in turn will influence the degree to which parties are willing to rely upon promises).

depend on a judicial decision. A putative bicycle purchaser might instead consider stealing the bicycle and taking his chances in court. In reality, though, bicycle ownership rights are backed by threat of injunction, or jail time, or reputational sanctions, or any number of other factors beyond the price a thief will be forced to pay. There is no real circularity.

Although the problem of circularity in valuation is not unique to patent law, it is especially stark and critical in that context. Unlike most other goods, the value of a patent depends *entirely* on its likely fate in court. Courts, for their part, have emphasized their desire to rely upon existing licenses to value patents whenever possible. The circularity problem thus squarely infects a broad swath of patent cases.

C.   Contracts with Third-Party Effects

The use of existing licensing agreements to determine patent damages raises another problem common to a wide variety of contracts that affect the rights and duties of third parties: it creates incentives to manipulate the value of the contract. Judicial use of licenses in valuing patents rests on the notion that the patent is being negotiated at arm's length between two parties who are dividing a joint surplus.[95] That is, neither party has any incentive to give the other side any consideration beyond what it is due in the course of the negotiation.[96] In other words, for a license to be reliable evidence, a court must believe that the parties are operating in good faith and at arm's length to value the patent. The reliability of the license depends on the presumed behavior of the parties.

But in many contractual settings, including many patent licenses, the two parties to the contract are not the only ones whose rights or interests may be at issue. There is of course a well-known literature in the law of

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[95] Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc., 699 F.3d 1340, 1357 (Fed. Cir. 2012) ("Damages for patent infringement based on hypothetical negotiation for reasonable royalty seeks to determine the terms of the license agreement the parties would have reached had they negotiated at arms length when infringement began."); Lucent, 580 F.3d at 1324 ("Two alternative categories of infringement compensation are the patentee's lost profits and the reasonable royalty he would have received through arms-length bargaining."); Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135, 1147 (2013) ("Under patent law, a reasonable royalty normally is based on a hypothetical, arms-length negotiation between a willing buyer and a willing seller that takes place at the time the infringement begins.").

[96] This is also true as a general matter. Courts typically use recent sales, negotiated at arm's length, as an indication of fair market value, absent some reason to believe otherwise. *See, e.g.*, Schonfeld v. Hilliard, 218 F.3d 164, 178 (2d Cir. 2000).

contracts on third-party beneficiaries to contracts.[97] But the issue of third parties arises with special force when a contract between *A* and *B* affects how a court will value some property or service in future litigation between *A* and a third party, *C*. For instance, imagine a contract between an automobile owner *A* and insurer *B*. *A* contracts with *B* to insure *A's* automobile in the amount of $10,000 and pays a premium based upon that amount. Under normal circumstances, *A* has no reason to insure the automobile for more than it is worth (unless *A* plans to commit fraud).[98] The greater A's insured amount, the higher the premium that *A* must pay.[99] *A* has no reason to pay a premium to purchase insurance greater than the amount of loss that *A* will actually suffer.[100]

　　Now suppose that *A* has reason to believe that *A* is likely to be involved in an automobile accident in which the other driver is at fault. (Perhaps *A* drives a substantial distance each day and has noticed a significant number of reckless drivers along the route.) If *A*'s automobile is wrecked in an accident with a third-party driver *C*, and *C* is at fault, *C* will be liable to *A* for the value of the automobile.[101] A court might attempt to assess that value independently, by scrutinizing the make, model, year and

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[97] 13 WILLISTON ON CONTRACTS § 37 (4th ed. 2010); 9-43 CORBIN ON CONTRACTS § 43 (2014); HOWARD O. HUNTER, MODERN LAW OF CONTRACTS § 20 (2014); Melvin Aron Eisenberg, *Third-Party Beneficiaries*, 92 COLUM. L. REV. 1358, 1359 (1992); Robert S. Adelson, *Third Party Beneficiary and Implied Right of Action Analysis: The Fiction of One Governmental Intent*, 94 YALE L.J. 875 (1985);.Anthony Jon Waters, *The Property in the Promise: A Study of the Third Party Beneficiary Rule*, 98 HARV. L. REV. 1109 (1985).

[98] *See, e.g.*, Richard A. Posner, *Efficient Responses to Catastrophic Risk*, 6 CHI. J. INT'L L. 511, 523 (2006) (explaining that there is no reason to expend resources beyond the point at which marginal costs exceed marginal benefits, and thus beyond the point at which there would be insurance for more than the value of a loss).

[99] Ronen Avraham, *The Economics of Insurance Law-A Primer*, 19 CONN. INS. L.J. 29, 58 (2012); *see also* Steven P. Croley & Jon D. Hanson, *The Nonpecuniary Costs of Accidents: Pain-and-Suffering Damages in Tort Law*, 108 HARV. L. REV. 1785, 1917 n.27 (1995) (explaining the manner in which premiums are typically calculated).

[100] Of course, generally speaking an insurance company will not sell insurance worth more than the replacement cost of property for fear of moral hazard. The concern is that the insured will take less care now that she is insured—for instance, driving more recklessly— particularly if she is insured for more than the value of the property. However, an insurance company may not know the insured's subjective valuation of the property. The insurer also may not have information regarding defects to the property that lower its value. So it is entirely possible that an insured party could end up with insurance greater than the value of the property being insured.

[101] Arthur Best, *Impediments to Reasonable Tort Reform: Lessons from the Adoption of Comparative Negligence*, 40 IND. L. REV. 1, 6 (2007); Christopher Curran, *The Spread of the Comparative Negligence Rule in the United States*, 12 INT'L REV. L. & ECON. 317, 322 (1992) ("While there are exceptions to the rule, in general, under comparative negligence the courts use the degree of negligence of the parties to an accident to determine the percentage of the costs of the accidents each party will pay.").

prior condition of the automobile, but that task could be complicated because the automobile is now in pieces. Alternatively, the court might attempt to value the automobile by looking to the value of the insurance agreement between *A* and *B*.

This creates an incentive for *A* to insure the automobile for more than it is worth. If the automobile is worth only $8000 to *A*, but the court assigns it a value of $10,000 because *A* has contracted for insurance in that amount, *A* will pocket a profit of $2000 after *C* totals *A*'s car. Accordingly, depending upon the additional premium that *A* must pay to insure the automobile for $10,000 rather than $8000, and depending upon *A*'s perception of the probability that the automobile will be damaged by a third party, *A* may have an entirely rational reason for insuring the automobile for more than it is worth.[102] In essence, *A* can use the contract with *B* (the insurer) to artificially inflate the perceived value of the automobile, anticipating that a third party (*C*) will later be forced to make a payment based upon that inflated value.

The litigation related to the attacks on the World Trade Center on September 11, 2001, offers an example of how these incentives might operate.[103] In July of 2001, a real estate developer (World Trade Center Properties, or "WTCP") leased the Trade Center from its owner, the Port Authority of New York and New Jersey, for approximately $2.8 billion.[104] When the towers were brought down by terrorists using airplanes as weapons, WTCP sued the airlines for negligence, arguing that the terrorists would not have been able to take control of the airplanes had the airlines taken reasonable care in securing them against hijackers.[105] The court held that the fair measure of the Trade Center's market value was the lease that WTCP had just signed with the Port Authority—$2.8 billion.[106] As the Trade Center's replacement cost was much higher, this was the full recovery to which the WTCP would be entitled.[107] Here, as in the hypothetical example above, the court relied upon the arm's length bargain

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[102] For instance, suppose that *A* must pay an additional $10 per year to insure the automobile for $10,000 instead of $8000, but *A* believes there is a 1% chance that she will be in an accident that is the fault of the other driver. By insuring her automobile for $10,000 instead of $8000, *A* must pay an additional $10/year but stands to gain in expectation $2000 × 0.01 = $20/year. This creates an incentive for *A* to purchase more insurance for her car than it is worth.

[103] In re September 11th Litigation, 590 F. Supp. 2d 535 (S.D.N.Y. 2008).

[104] *Id.* at 536.

[105] *Id.*

[106] *Id.* at 540-44. New York law, which governed the case, provided that a tort plaintiff whose property was damaged was entitled to the lesser of (1) the property's market value, or (2) its replacement cost. *Id.* at 541 (citing Hartshorn v. Chaddock, 31 N.E. 997, 998 (1892)).

[107] *Id.* at 541.

between WTCP and the Port Authority to establish the market value of the Trade Center. As the court explained, "Generally, a recent sale price for the subject asset, negotiated by the parties at arm's length, is the best evidence of its market value."[108]

When it signed the lease with the Port Authority, the WTCP undoubtedly understood that a court would look to that lease to estimate the value of the Trade Center if it was damaged by a tort. The WTCP thus had an incentive to artificially inflate the rental price. The Trade Center had already once been subjected to a terrorist attack, and the WTCP insured the buildings for over $3.5 billion against any damage, including damage from a terrorist act.[109] Of course, it would not have made sense for the WTCP simply to pay a higher price for additional insurance. There was only some small probability that the Trade Center would be damaged by a third party (who could then be made to pay), and so each additional dollar that it paid to the Port Authority would likely lead to only a few additional cents of recovery.

But the price is rarely the only term in a contract. The lease may have committed the Port Authority to provide related services, or financing for the lessor, or any number of other benefits. The WTCP thus could have arranged to purchase other positive terms in the lease for a higher lease price, figuring that it had a chance to recoup the higher price if the WTCP was damaged by a third party in tort. For instance, there might be some other contract term that the Port Authority would be willing to provide for $100 million and that WTCP would value at $98 million. It would be inefficient for the parties to agree to this term. But if the WTCP believed that there was a 3% chance that the Trade Center would be damaged or destroyed in a tortious action, then it would have an incentive to agree to the term because it could recoup 3% of the cost: ($100 million × 3%) + $98 million = $101 million, which is greater than $100 million. The implication is that using market agreements between two parties to assess tort damages upon a third party can lead to inefficient behavior by the two contracting parties, not just the third-party tortfeasor.

These examples may seem far-fetched in the context of automobile insurance, where most policies do not offer the car's owner the opportunity to specify an insured amount, or the World Trade Center, where an act of terrorism may seem too unlikely to affect behavior.[110] But its applicability

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[108] *Id.* at 546-47 (citing and quoting Schonfeld v. Hilliard, 218 F.3d 164, 178 (2d Cir.2000)).

[109] *Id.* at 538-39.

[110] *See* Saul Levmore, *Self-Assessed Damages for Tort and Other Law*, 68 Va. L. Rev. 771, 821-24 (1982) (suggesting that insured parties will not use insurance contracts strategically where the likelihood of a triggering event is low).

to patent law is much more straightforward. When a patent holder *P* agrees to license a patent to a licensee L_1, it must anticipate that this license will be used to set damages in any future litigation between *P* and future licensees L_2 or L_3. Accordingly, *P* has an incentive to drive the price it sets with L_1 as high as it possibly can.

How would *P* go about this? As a first step, it might engage in hard bargaining, refusing to license the patent for a reasonable amount. The social cost is that licensing agreements might become much less common if patent holders refuse to license their IP for reasonable sums that approximate expected trial outcomes. The result could be a decrease in licensing and an increase in socially costly trials.

An alternative would be for *P* to package a patent license with other valuable inducements in order to obtain a higher price. The typical patent license includes just two terms: a royalty payment, and a license for the patent for a period of years.[111] Yet this need not necessarily be the case. Just as the WTCP might have obtained more favorable loan terms or any number of other contractual benefits in exchange for a higher lease price, *P* might provide subsidiary benefits—in addition to the patent license itself— in exchange for greater royalties. *P* could offer to share technical information with L_1, or make available its employees to assist L_1 in utilizing the patented technology,[112] or promise *L₁* a discount on future patent licenses, or package the patent license with a trademark license or other intellectual property, or any number of other inducements. Even if *P* is effectively "selling" the good or service for less than it is worth (if *L₁* will not take it for full value), the exchange is still worthwhile for P if it will increase the royalties it might eventually receive from L_2 or L_3.

P might also negotiate a license in which it absolves *L₁* of responsibility for all past and future infringement while appearing to be selling a license only for a portion of that time period.[113] For instance, suppose that *L₁* has sold 1 million allegedly infringing units of a product and intends to sell 1 million more. Imagine that *P* and *L₁* agree upon a royalty of $1 per unit. *P* could offer *L₁* a blanket license for a lump sum payment of $1.5 million, which represents a discount of $500,000 compared with what *L₁* might have expected to have paid. *P* could then structure the license so that it only references *L₁*'s future conduct, making it appear as if *L₁* is actually paying a royalty rate of $1.50 per unit.

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[111] *See Simple Patent Licenses*, 3 ECKSTROM'S LICENSING - FORMS § 5:1 ("There is undoubtedly a large number of naked patent licenses regularly granted which are unaccompanied by rights to use other forms of intellectual property.").

[112] *See* Lee, *supra* note 88, at 1505 (arguing that patent license can facilitate this type of knowledge transfer).

[113] *See* Keele, *supra* note 11, at 228 (describing a similar type of arrangement).

These concerns are not hypothetical. For instance, in Ericsson v. InterDigital,[114] a third party (Nokia) accused InterDigital of artificially inflating the value of its patents in order to drive up the licensing price that Nokia would be required to pay. InterDigital had agreed to license patents to Nokia for a price based in part on what other firms would pay InterDigital to license the same patents.[115] InterDigital then succeeded in negotiating a lucrative license with Ericsson and demanded a substantial payment from Nokia. Nokia, in return, accused InterDigital of artificially inflating the value of its license with Ericsson. This example is perhaps more acute than the typical case in which licenses are used to compute damages because the price of Nokia's license depended directly on the agreement between InterDigital and Ericsson. Nonetheless, the same types of concerns pervade both situations.

Because of these concerns, courts generally do their best to prevent these types of arrangements from infecting license-based valuations. If a patent license includes additional benefits—above and beyond a simple license to the patent—courts typically refuse to treat the license as evidence of a reasonable royalty.[116] As noted above, this is entirely appropriate in the context of litigation damages where the only benefit "purchased" by the defendant is a license to use the patent. P might still attempt to hide the other terms of the deal, describing the royalty rate in one document and leaving the other inducements for a separate document or no document at all. If it were later discovered that a license relied upon by the court contained other, unstated terms, it might be possible to reopen the damages judgment based on fraud on the court. Nonetheless, it will be incumbent upon courts and parties to remain vigilant in policing these types of behaviors. As courts rely more and more upon licenses for measuring reasonable royalties, patent owners will have incentives to inflate licensing prices and then attempt to obscure or conceal that inflation by any means available to them.

It is worth noting that the effects detailed in this section and in section II.A push in opposite directions. Because licenses are necessarily probabilistic calculations of expected trial outcomes—with victory for the patent holder uncertain—they will tend to depress damages calculations at trial. At the same time, patentees have an incentive to inflate the price of licensing agreements, even at the expense of inefficient transactions, which will tend to increase damages calculations at trial. It may be tempting to conclude that these effects will balance one another out, or at least come close enough to doing so that it is safe to ignore them. But this would be

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[114] 418 F.3d 1217 (Fed. Cir. 2005).

[115] *Id.* at 1220.

[116] *See supra* note 40 and accompanying text.

error. It would be pure fortuity if the two effects negated one another, and there is no reason to expect that they would. Moreover, the price distortion from the former effect—the fact that licenses represent settlement of uncertain patent claims—will likely dwarf any distortion that patentees can introduce by inflating license prices. If a given patent is only 50% likely to be valid and infringed—which may if anything be an overestimate of the patent's probability of success—then the licensing price for the patent will be discounted by 50%. It seems unlikely that a patent holder could inflate the licensing price of a patent through contract to the same degree. Nonetheless, any type of contractual manipulation is harmful both for the mispricing it can cause, and for the social waste and rent-seeking it generates.

IV.   A WAY FORWARD?

The question that remains is whether there exists a solution to the problems described above. Is there a mechanism by which courts can render patent licenses a useful guide to calculating reasonable royalty damages? It is on this issue that courts and commentators have floundered. This Part takes up the challenge of finding such a solution.

A.   The Selection of Licenses

As an initial step, courts should attempt to select those licenses that provide the most accurate estimate of damages. The dollar value of a license (roughly) represents the underlying value of the patent discounted by the probability that the patent will be found invalid or not infringed at trial. If the parties believe that there is only a 10% chance that a court will find the patent valid and infringed, the license value will be 10% of the patent's underlying value—which is what the court is attempting to discover.[117] If the parties believe that there is a 50% chance that a court will find the patent valid and infringed, then the parties will agree to license the patent for 50% of the patent's underlying value. Accordingly, the most accurate gauge of a patent's value will be provided by licenses negotiated by parties who agreed that a patent was 100% likely to be found valid and infringed. If the parties had no doubt as to the expected outcome at trial, then they would likely have negotiated a licensing amount approximately equivalent to d—the expected damages at trial, and the value that the court is seeking to discover. More generally, the greater the probability that the patent owner would prevail at trial (per the beliefs of the parties to a licensing

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[117] *See supra* notes 57-65 and accompanying text.

negotiation), the closer the value of the license to the "true" value of the patent, and the greater the weight that license should be afforded by a court when assessing damages.

In many cases, this means licenses negotiated as litigation settlements will be *more* accurate and *more* useful gauges of patent value than licenses negotiated outside of litigation. In particular, the most reliable indicator of value will be a license negotiated in the course of a trial that the patent owner was *winning*, or (better yet) winning handily.[118] The closer the plaintiff is to being 100% certain of prevailing, the more accurate the value of the license.[119] Courts should thus look for licenses that were negotiated under circumstances that were highly unfavorable to the defendant. If the defendant has received an unfavorable claim construction ruling,[120] or had its invalidity defenses thrown out on summary judgment,[121] and elects to settle, it is safe to assume that the plaintiff and defendant believe it is highly probable that the patent will be found valid and infringed—and surely more probable than they did before the trial started. A defendant who is losing at trial will often see the writing on the wall and settle the case for close to the patent's full value.[122] To be clear, the point is comparative: if courts must use existing licenses, they are better off with licenses negotiated when the defendant was losing at trial.

Recall the issue in *LaserDynamics*, described in Part I: the parties introduced twenty-nine licenses into evidence, twenty-eight of which were for amounts of $1 million or less, and one of which—the BenQ settlement—was for $6 million.[123] The BenQ settlement was negotiated as an end to a trial in which the defendant had already been repeatedly sanctioned, faced a stark disadvantage at trial, and was very likely to lose.[124] The BenQ license was thus an extreme outlier—and of all the licenses in evidence, it was the one that most accurately captured the value

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[118] For the purposes of using a license to indicate the value of a patent, it does not matter why the patent owner is winning the case. All that matters is that the parties believe it is very likely that the patent will be held valid and infringed. The one exception is if the defendant is at risk of being forced to pay treble damages for willful infringement. *See* Power Lift, Inc. v. Lang Tools, Inc., 227 U.S.P.Q. 435, 438 (Fed. Cir. 1985). The threat of treble damages would distort the licensing price.

[119] *See id.*

[120] Claim construction is the process by which a court interprets or construes the claim terms in a patent. *See* Markman v. Westview, 517 U.S. 370 (1996) (outlining the procedure for courts to construe claims).

[121] *See* 35 U.S.C. §§ 101, 102, 103, 112 (describing the various bases upon which a defendant might argue that a patent is invalid).

[122] *See* Posner, *supra* note 27, at 406 (analyzing bargaining dynamics within trial).

[123] LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 57–58 (Fed Cir. 2012)

[124] *Id.* at 58 ("The district court had allotted BenQ one-third less time than Mr. Kamatani for *voir dire,* opening statement, and closing argument . . . .").

of the patent. This is precisely because BenQ was so likely to lose at trial. Six million dollars is the amount that a defendant was willing to pay LaserDynamics when it seemed certain that it would lose at trial and be made to pay one way or another; $1 million (or less) was the amount that licensees were willing to pay when there was some substantial likelihood that they would prevail if it came to a trial. The *LaserDynamics* court should have adopted exactly the opposite posture: it should have treated the BenQ settlement as its guiding star and relegated the other twenty-eight licenses to secondary status. It is in this respect that the courts' approach to using licenses to assess patent damages is not merely incoherent, but backwards.

Of course, licenses negotiated as settlements to trial will not always provide more accurate guides than licenses negotiated outside of trial. The probability of prevailing at trial, even against the same patent owner, can differ widely from licensee to licensee. This is primarily because they may be selling different products with different probabilities of infringing the patent.[125] There may be cases in which a license negotiated outside of litigation provides the most accurate guide to patent value because that licensee happens to believe it has the lowest probability of success at trial. But in the aggregate, the licenses that provide the most accurate indications of value will be those negotiated in the midst of trials that were going well for the plaintiffs and poorly for the defendants.

This is why courts' and commentators' hostility toward litigation settlements as a gauge of patent damages is not just misguided but backward.[126] In refusing to consider licenses negotiated during litigation, courts have ignored not merely a useful source of information, but in many cases *the most useful* source of information. Of course, that is not to say that licenses negotiated in litigation will necessarily be terribly useful, particularly when the licensee was not faring poorly. These licenses still represent only floors to a patent's value, not accurate point estimates. But in many cases the courts will have no better options.

B.   An Estimated Multiplier

Another solution would be for the court assessing damages to apply a multiplier to an existing license. If a court concludes that the parties to an existing license believed there was a 25% probability that the patent was valid and infringed, it could simply multiply the license value fourfold and

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[125] If the patent is invalid, it is invalid with respect to all potential infringers. Greene, *supra* note 78, at 5-7. But some putative infringers might make products that almost certainly infringe, while others might manufacture products that are highly unlikely to do so.

[126] *See* sources cited in *supra* notes 46-47.

assess damages in that amount.[127] This solution seems promising (and simple) at first glance, but it runs immediately into the problem of private information that permeates this issue. The court needs to know how the parties to the license *perceived* the strength of the patent—what probabilities did *they assign* to validity and infringement?[128] The only truly reliable information on this question is in the possession of the parties to the license themselves, and it is very unlikely that the court could ever discover this information. In most cases what information that exists will be protected by attorney-client privilege.[129] If a licensing party formed a belief about the probability of invalidity or infringement, it likely did so in the context of a communication with its lawyers. Even where the relevant information is discoverable, there may be no written record; the court would need to rely upon the testimony of the parties. And of course the patent owner has no reason to testify honestly and nothing to prevent it from artificially inflating the patent's value.

In the alternative, a court might seek objective indications of the probabilities that underlay an existing license. When the parties present expert evidence on damages, their experts might include estimates of the ex ante probability that a patent would be found valid and infringed—in other words, the expert's best guess as to the parties' beliefs, at the time the license was negotiated, of the probability that the patent owner would prevail at trial.[130] (Or, for that matter, the court might hire its own expert or special master to provide an independent evaluation of the same question.[131]) In essence, the court would be constructing a miniature trial on the merits of the prior license, attempting to reconstruct the terms of the bargain that the parties intended. Indeed, it appears that some patent

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[127] *See* Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 643 (2010) (proposing a structured method by which courts might calculate patent royalty damages); Taylor, *supra* note 11, at 131 (suggesting that "adjustments" be made to license values, without specifying what those adjustments might be); Jarosz & Chapman, *supra* note 11, at 797. None of these scholars recognizes or analyzes the advantages and problems involved in such an approach as detailed in this section.

[128] *See supra* Part II.A.

[129] *See* Burlington Industries v. Exxon Corp., 65 F.R.D. 26 (D. Md. 1974) (defining and describing the scope of the attorney-client privilege); In re Revastigmine Patent Litigation, 237 F.R.D. 69 (S.D.N.Y. 2006) (same); *see also* John Dragseth, *Note, Coerced Waiver of the Attorney-Client Privilege for Opinions of Counsel in Patent Litigation*, 80 MINN. L. REV. 167 (1995) (analyzing situations in which parties can be forced to disclose otherwise privileged information).

[130] *Cf.* Apple, 869 F. Supp. 2d at 905 (discussing the role that damages expert play in establishing reasonable royalty damages at trial).

[131] This practice is relatively rare, but it does occur on occasion. One instance was the Apple v. Motorola litigation before Judge Posner. *See id.* (discussing the court's use of an independent damages expert); s*ee also* FED. R. EVID. 706.

damages experts have begun suggesting multipliers in their expert reports.[132] In theory, courts could draw upon experts' recommendations and attempt to calculate multipliers to license values.

Yet there are (at least) four significant problems with this approach. The first is that it involves using objective information to answer a fundamentally subjective question. When an expert attempts to assess the likelihood that a patent would have been held valid and infringed in a prior litigation, the expert must endeavor to determine the parties' perceptions of the patent's strength at the time the license was negotiated. But there is no reason to believe that this expert's guess will hit anywhere close to the mark. The expert might discover important prior art that the licensee could not find; or the expert might miss important prior art that the licensee possessed.[133] Similarly, the expert might have at her disposal a set of arguments that the prior licensee did not, or lack some legal theory that the prior licensee viewed as critical. Using an expert to estimate a prior licensee's view of its prospects at trial rests on a grand assumption: the expert will have access to the same evidence and the same legal arguments as the prior licensee. It is of course possible that this assumption will hold in one case or another, but there is little reason to believe that it will be consistently true. After all, the damages expert is operating at the end of a full trial on the merits, during which the parties have presumably produced every significant piece of evidence and argument available.[134] The prior license might have been negotiated well before any trial, after much less investigation and study.

The second problem is that the prior licensing negotiation involved private information that an expert in a later case cannot access.. The infringement issues in the instant case might differ dramatically from the infringement question that confronted the parties to the earlier license. The prior licensee (L_1) might have been producing a very different product from

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[132] However, reported cases in which experts are even permitted to testify in favor of multipliers are few and far between. *Compare* Mondis Tech., Ltd. v. LG Electronics, Inc., No. 2:07-CV-565-TJW-CE, 2011 WL 2417367, at *7 (E.D. Tex. June 14, 2011) (allowing an expert to testify that an existing royalty should be tripled) *with* Avocent Redmond Corp. v. Rose Electronics, 2013 WL 1890007 (W.D. Wash.) ("This Court correctly prohibited Dr. Kerr from arbitrarily trebling his proffered royalty based on a generic 33% litigation success rate.").

[133] Prior art is any information in the public domain that predates the patented invention. A patent can be invalidated as obvious or not novel on the basis of prior art. Robert Patrick Merges & John Fitzgerald Duffy, Patent Law and Policy: Cases and Materials 42-49 (6th ed. 2013).

[134] *See* Timothy Flynn, Jr., *On "Borrowed Wits": A Proposed Rule for Attorney Depositions*, 93 COLUM. L. REV. 1956, 1962 (1993) ("The second fundamental justification offered for the adversary model is that its incentive structure makes it the best system for eliciting truth.").

the product that was at issue in the current litigation between the patent owner (P) and the new putative infringer (L_2). Moreover, with respect to the prior license, L_1 might be in possession of critical information related to infringement. After all, it was L_1's product that was alleged to infringe the patent. L_2 may have difficult accessing this private information; L_1 is not a party to the lawsuit and can be served only with certain types of discovery.[135] And without that information, L_2's expert can only guess at the probability that L_1 would have been found to infringe.

The third problem with attempting to estimate a multiplier for a prior license is that it forces the parties to make arguments during the damages phase of the trial that directly contradict the arguments they made during the liability phase. The defendant will argue that the court should apply a low multiple—perhaps a multiple of 1—to the prior license when calculating damages. In other words, the defendant will argue that when P licensed the patent to L_1, it was a near-certainty that the patent was valid and infringed. This follows a trial in which the defendant argued precisely the contrary (particularly with respect to invalidity). The patent owner (P), for its part, would argue for a high multiple, claiming that when it negotiated with L_1 it was doubtful that a court would find the patent valid and infringed. The patent owner has of course just spent the entire trial arguing the opposite: that the patent is obviously valid and infringed. Accordingly, both parties would find themselves trying to proffer arguments that they are likely estopped from raising due to positions they had taken earlier in the litigation.[136] The result would be an awkward mess for the court. To be sure, these conflicts between the liability and damages phases might limit the sorts of outlandish claims the parties might try to make. But while that might be a good mechanism for reaching a moderate result, it will not necessarily lead to an accurate one.[137]

Finally, even if the parties' experts manage to produce insightful and accurate estimates of the licensing multiple, the court will likely misuse or even ignore them. Consider the point at trial at which this issue will arise. The judge and jury have just completed a trial in which the patent was found to be valid and infringed. They are now being asked to find—

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[135] *Compare* FED. R. CIV. P. 30 (allowing depositions of nonparties) *with* FED. R. CIV. P. 33, 35, 36 (barring interrogatories and other types of discovery directed at nonparties) *and* FED. R. CIV. P. 45 (permitting document requests directed at nonparties only with leave of the court).

[136] Teledyne, Inc. v. NLRB, 911 F.2d 1214 (6th Cir. 1990) (analyzing and describing judicial, equitable, and collateral estoppel).

[137] This particular problem could be avoided if the court simply appointed its own expert. But then the court would lose the benefit of the adversarial process and the high-powered incentives it creates. There is no guarantee that the court's expert will obtain all of the most relevant evidence or raise the most important arguments on either side.

contrary to what they have just decided—that there was a significant ex ante probability that they would have reached the opposite decision. This is an implausible mental task for nearly anyone, including judges.[138] People too often fall prey to motivated reasoning—the tendency to believe selectively those facts and arguments that support their prior conclusions and dispositions.[139] Any judge or juror would be very hard-pressed to give a fair hearing to an expert who claims that their decision was less than 100% foreordained. Inevitably, then, courts and juries will consistently underestimate the appropriate multiplier to apply. In many cases they will ignore the need for a multiplier entirely. It is for this reason that no court has ever applied or even discussed the use of a multiplier in a published opinion, even though many have discussed the use of licenses to set reasonable royalty damages.[140]

C.   A Standard Multiplier

Instead of attempting to calculate a multiplier for any given license or case, courts could instead apply a standard, constant multiplier to all licenses across all cases. For instance, patent plaintiffs prevail in approximately 25% of all patent cases.[141] If we assume, as a very rough cut, that any given patent owner has a 25% chance ex ante of prevailing against any given alleged infringer,[142] then the appropriate multiplier is four.[143] Courts have thus far appeared resistant to using a standard multiplier, but on

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[138] Stephen A. Siegel, *The Constitution on Trial: Article III's Jury Trial Provision, Originalism, and the Problem of Motivated Reasoning*, 52 SANTA CLARA L. REV. 373, 455 (2012); Jon Hanson & Douglas Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 633, 653 (1999); Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480 (1990).

[139] DANIEL KAHNEMAN, THINKING FAST AND SLOW (2014); *see also* Eric A. Posner & Cass R. Sunstein, *Institutional Flip-Flops* (unpublished manuscript 2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2553285 (discussing motivated reasoning in the context of institutional questions).

[140] *See supra* Part I.

[141] Mark A. Lemley, *The Fractioning of Patent Law*, *in* INTELLECTUAL PROPERTY AND THE COMMON LAW, (Shyamkrishna Balganesh, ed.) (2012).

[142] This is of course an entirely heroic assumption. It is highly possible that the probability of prevailing against a party that eventually agreed to license a patent diverges substantially from the actual probability of prevailing at trial, due to selection effects. The point is not to arrive at the perfect number, but just to find a rough and ready estimate that can be deployed across cases. As the discussion will demonstrate, there are substantial problems that accompany even this use of a rough number that go beyond any question of accuracy of what that number should precisely be.

[143] $1 / 0.25 = 4$.

the grounds that it lacks a connection to the case at bar.[144] However, that is precisely the advantage of such an approach. The use of a standard multiplier would free courts and experts from the informational problems described above. It would also eliminate the concern that judges and juries would underestimate the appropriate multiplier due to motivated reasoning.[145]

The use of a standard multiplier would create problems, though. Even if the standard multiplier is correct in the aggregate, in the sense that the average license involves a patent that was 25% likely to be found valid and infringed, it will still overcompensate and undercompensate most patent holders. If the proper multiplier for a license is greater than four, the standard multiplier will undercompensate the owner of that patent if it prevails at trial. If the proper multiplier is less than four, the standard multiplier will overcompensate the patent owner. The patent owner will be properly compensated only in the rare case where the particular licensed patent was exactly 25% likely to be found valid and infringed at trial. Under normal circumstances, this type of systematic overcompensation and undercompensation would be a problem.[146] After all, it is not the aggregate outcome that matters. If certain types of inventors are being systematically undercompensated, they may reduce their investments in research and development. And if other inventors are being systematically overcompensated, they might engage in socially wasteful expenditures in order to acquire more patents. Wastefully high levels of resources will flow to the types of inventions that are being overcompensated, leaving other types of innovation underfunded.

However, in this context, the overcompensation and undercompensation may turn out to be a feature, rather than a bug. The reason is that the patent owners who will be undercompensated are those who succeeded in licensing patents with a low probability of winning at trial. For instance, if a patent owner (P) and licensee (L_1) agree that there is only a 10% chance that the patent will be found valid and infringed, they will discount the licensing price by a factor of 10. If P eventually prevails against a subsequent licensee (L_2) at trial, the proper multiplier would be 10. A standard multiplier of 4 would undercompensate this patent holder. By contrast, the patent owners who will be overcompensated are those who licensed patents with a high probability of winning at trial. If P and L_1 had

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[144] *See, e.g.*, Avocent, 2013 WL 1890007 (prohibiting an expert from testifying in favor of a standard multiplier).

[145] *See supra* Part III.B.

[146] *Cf.* Anthony Niblett, *Case-by-Case Adjudication and the Path of the Law*, 42 J. LEG. STUD. 303, 304-06 (2013) (explaining, in the context of judging, that two extreme judges will not cancel one another out but will instead likely produce extreme law).

agreed that the patent was 75% likely to be found valid and infringed, the appropriate multiplier (in the *P v. L₂* trial) would be 4/3 or approximately 1.33. A multiplier of 4 would overcompensate *P*.

This means that parties with strong patents who assert good claims will be overcompensated, while parties with dubious patents who assert weak claims will be undercompensated. From a social perspective, this is desirable. A standard multiplier will dissuade patent owners from demanding licenses where they have only a weak claim to validity and infringement, potentially curbing some of the worst abuses perpetrated by so-called patent "trolls."[147] At the same time, a standard multiplier will reward parties with strong patents who pursue only obviously infringing parties. This may be unnecessary, as those types of patent owners are likely to be rewarded regardless, but it is probably not especially harmful.[148] Accordingly, at least at first glance, this approach has much to recommend it.

Yet there is a significant problem with using a standard multiplier. The problem lies with the circularity of using licenses to calculate trial damages and vice versa, and the positive feedback loop that it creates. Suppose that *P* is the owner of a strong patent that has never been litigated or licensed. *P* demands that L_1 license the patent, and the parties agree that the patent is 75% likely to be found valid and infringed. The parties further agree that a court would likely award $10 million in damages if *P* prevailed. They agree that L_1 will license the patent for $7.5 million.[149] Now *P* approaches L_2—who is selling a product similar to L_1's—and demands that L_2 license the patent. The parties agree that the patent is 75% likely to be found valid and infringed if the case were to go to trial. But in light of the license between *P* and L_1, the parties realize that if *P* were to prevail at trial, the court might well award $30 million in damages—the $7.5 million license between *P* and L_1, adjusted upward by a multiple of 4.[150] Facing a 75% chance of incurring a damages verdict of $30 million, L_2 will be forced to pay $22.5 million for a license, vastly more than L_1. And then, if *P* were

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[147] *See, e.g.*, T. Christian Landreth, *The Fight Against "Patent Trolls:" Will State Law Come to the Rescue?*, 15 N.C. J.L. & TECH. ON. 100 (2014) (describing the practice of sending demand letters to entities that are likely not infringing in the hope of negotiating small settlements).

[148] *See* Anup Malani & Jonathan S. Masur, *Raising the Stakes in Patent Cases*, 101 GEO. L.J. 637 (2013) (arguing that it makes economic sense to over-reward winning patent litigants in order to compensate them for the possibility that a court might have errantly invalidated their patents).

[149] $10 million × 0.75 = $7.5 million.

[150] More conservatively, the court might award damages in the amount of $20 million, which is halfway between the $10 million figure that the court might calculate with the help of experts, and $30 million, which the license would dictate. The effect on subsequent licenses would be the same; the magnitude would just be slightly smaller.

to demand a license from a third putative infringer L_3, the upward spiral in value will continue. The result will be *vast* overcompensation of P. While some modest degree of overcompensation might not be problematic, an uncontrolled upward spiral in the value of the patent would almost surely lead to wasteful diversion of resources.[151]

The same sort of spiral will occur, though in the downward direction, with respect to weaker patents. Suppose P demands that L_1 license a patent that both parties agree is 10% likely to be found valid and infringed at trial. The parties further agree that a court would likely award $10 million in damages if P prevailed. L_1 thus agrees to license the patent for $1 million. P then approaches a similarly situated L_2, and the parties agree that there is a 10% probability that the patent would be found valid and infringed at trial. Now, however, L_2 is facing potential liability of only $4 million if it litigates and loses at trial, because of the license between P and L_1.[152] Accordingly, L_2 will be willing to license the patent for only $400,000. Just as the value of a strong patent will spiral upward, the value of a weaker patent will spiral downward.

Put more formally, any time the standard multiplier M is greater than $1/p$ (the inverse of the plaintiff's probability of success at trial), it will create an upward spiral in value. Any time $M < 1/p$, the standard multiplier will create a downward spiral in value. Only when M happens to be chosen perfectly—that is, $M = 1/p$—will this spiral not develop.

Again, in and of itself this is not necessarily a decisive problem; it might be appropriate to undercompensate parties who assert weaker patents.[153] But it could create harmful incentives and lead to other types of wasteful behavior. For instance, if P has a weak case against L_1 but knows that any settlement it reaches will harm it in future cases, it might choose to litigate rather than settle.[154] This could lead to wasteful litigation expenditures and social costs. Alternatively, P and L_1 might engage in other types of socially wasteful behavior in an attempt to obscure the value of the license or render it inapplicable to future cases. For instance, P might bundle the patent license with other goods that L_1 neither wants nor needs,

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[151] *See* Malani & Masur, *supra* note 148, at 652 (explaining the social harm that can be caused by dramatic overcompensation of patent owners, even when their patents are valid and infringed).

[152] Again, the court might settle on a value somewhere between $4 million and $10 million. Regardless, the effect will be the same; only the magnitude of the effect will differ.

[153] *See* Malani & Masur, *supra* note 148, at 657 (analyzing the effects of under-compensation on patent owners).

[154] On the other hand, P faces the risk that its patent would be invalidated at trial. But if P has a valid patent, and the weakness in its case is that L_1 may not be infringing, then it has strong reasons to proceed to trial rather than allowing L_1 to negotiate a license.

such as trademarks or tacit knowledge.[155] The result would be to eliminate the license as a useful measure of patent value, using an inefficient and socially wasteful transaction.

The upshot is that while the *static* overcompensation and undercompensation caused by using a standard license multiple might be harmless or even desirable, the *dynamic* overcompensation and undercompensation that results from feedback between licensing and trial will be harmful. This speaks to the insuperable nature of the difficulties generated from the licensing-litigation circularity.[156] Without some mechanism for breaking this circularity, dynamic under and overcompensation will frustrate any attempt to use licenses as a reliable measure of patent damages over time.[157] The prospects for finding a true market measure of patent value do not seem promising.[158]

CONCLUSION

Courts inevitably struggle to assess reasonable royalty damages, and it is only natural that they would turn to market-based measures such as existing licenses. However, courts' attempts to use these licenses to determine patent damages at trial are frustrated by three problems. Calculating the underlying value of the patent from an existing license requires private information that the court cannot access; doing so involves

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[155] *See* Lee, *supra* note 88, at 1507 (describing such transfers).

[156] *See supra* Part II.B.

[157] It is extremely common for a patent holder to approach multiple parties sequentially and demand licenses. *See, e.g.*, LaserDynamics, 694 F.3d at 58 (noting that there were 29 licenses on record). The dynamic problems caused by licensing-litigation circularity are likely to exist across a broad swath of the relevant patents.

[158] There are even more imaginative possibilities. One, which is suggested by recent work by Sarah and Michael Abramowicz, would be to force parties to negotiate each element of a settlement separately and sequentially, without comingling the separate issues. Sarah Abramowicz & Michael Abramowicz, Severing Settlements (unpublished manuscript 2015), on file with author. In the patent context, Congress could require patent owners and licensees to negotiate damages and probability of infringement separately. That is, instead of the two parties simply settling on a royalty, they would first negotiate the damages money they expect the court to assess against the defendant in the event the patent was found valid and infringed. They would then negotiate the probability that the patent would in fact be found valid and infringed at trial. The result would be a license that actually contained information regarding the parties' view of the economic value of the patent. The problem with this arrangement is the immense incentive to cheat; both parties would benefit from agreeing to an inflated damages figure and a reduced probability. Accordingly, this proposal may not be easily imported to patent law. Nonetheless, similar types of revelation mechanisms could hold promise as means of placing market values on patents, and they are a fruitful subject for future study.

a circularity that is difficult to evade; and parties to a license have incentives to distort the value of that license in order to affect future proceedings. There are various correctives that a court can employ, including selecting the most information-rich licenses and applying a multiplier to license values where appropriate. But even these measures have limited efficacy.

It is in the nature of legal scholarship to write comedies, rather than tragedies.[159] Each legal problem should be accompanied by a clever (and preferably plausible) solution. But it does not seem that this story is meant to end well. Finding an accurate measure of patent damages is critical, and never more so than right now, as patents assume an ever more important role in the legal landscape and damages take center stage. But existing licenses cannot provide a useful guide to the value of a patent, only the bare minimum of a valuation floor. Courts have no choice but to muddle through technical analysis and expert reports per the remaining *Georgia-Pacific* factors. There is no reliable substitute, and no other way to make sense of the "true" value of a patent without creating a circularity. It is unfortunate that courts will not be able to draw upon market indications of value, but sometimes no guidance is better than guidance that can only lead astray.

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[159] To my knowledge, Tom Miles was the first to offer this observation.