

THE USE AND MISUSE OF PATENT LICENSES

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ABSTRACT—Patents are becoming an increasingly large business with ever greater resources devoted to litigation and enforcement. 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 preexisting 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. This Article describes and analyzes these three problems and then turns to potential solutions. It evaluates 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.

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INTRODUCTION

In 2014 alone, patent holders filed approximately 5700 lawsuits in federal court—and that substantial figure even represented a decline of approximately 13% from the all-time high of approximately 6500 cases filed in 2013.¹ At the same time, the median patent damages award fell to \$2.0 million.² This continued a fifteen-year downward trend and represented the second lowest median damages award over the past twenty years.³ In combination, these two trends are striking. Patents are becoming an increasingly large business with ever greater resources devoted to litigation and enforcement. Yet at the same time that investments in litigation have increased, the rewards that patent owners are able to realize at trial have continued to decline.

These trends have been accompanied by renewed attention to damages calculations from both the courts⁴ and the scholarly literature.⁵ Part of the

¹ PWC, 2015 PATENT LITIGATION STUDY 3 (2015), <http://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf> [<http://perma.cc/YU2H-88MJ>] [hereinafter PWC, 2015 PATENT LITIGATION STUDY]; PWC, 2014 PATENT LITIGATION STUDY 2 (2014), <http://www.pwc.com/us/en/forensic-services/publications/assets/2014-patent-litigation-study.pdf> [<http://perma.cc/S9HP-2ASM>].

² PWC, 2015 PATENT LITIGATION STUDY, *supra* note 1, at 4.

³ *Id.* at 4.

⁴ *See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1323–39 (Fed. Cir. 2009); Apple, Inc. v. Samsung Elecs. Co., No. 12-CV-00630-LHK, 2014 WL 6687122 (N.D. Cal. Nov. 25, 2014) (setting ongoing royalty payments); Apple, Inc. v. Samsung Elecs. Co., No. 11-CV-01846-LHK, 2014 WL 549324 (N.D. Cal. Feb. 7, 2014) (denying Apple’s request for additur following a second trial on damages); *In re* Innovatio IP Ventures, LLC Patent Litig., No. 11 C 9308, 2013 WL 5593609 (N.D. Ill. Oct. 3, 2013); Apple, Inc. v. Motorola, Inc., 869 F. Supp. 2d 901 (N.D. Ill. 2012) (Posner, J.), *aff’d in part, rev’d in part, vacated in part*, 757 F.3d 1286 (Fed. Cir. 2014).

explanation for the heightened importance of monetary damages in patent law is the Supreme Court's 2006 decision in *eBay v. MercExchange*.⁶ That decision made it more difficult for prevailing patent plaintiffs to obtain injunctions.⁷ One of the primary benefits of granting an injunction was that it often freed the judge from having to calculate damages, leaving that determination to the parties.⁸ 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.

Nonetheless, the renewed attention to patent damages has not diminished the challenge of accurately calculating them at trial. In some instances, the plaintiff and defendant are both practicing entities that produce competing products.⁹ In these cases, the judge or jury has the comparatively easier task of determining damages by estimating lost profits: how many additional sales would the plaintiff have made had the

⁵ See, e.g., Stephen J. Conroy et al., *The Case for Admitting Settlement License Agreements in a Reasonable Royalty Analysis*, 46 LES NOUVELLES 291 (2011); 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); 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); 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); David O. Taylor, *Using Reasonable Royalties to Value Patented Technology*, 49 GA. L. REV. 79 (2014); Jaimeson Fedell, Note, *A Step in the Right Direction: Patent Damages and the Elimination of the Entire Market Value Rule*, 98 MINN. L. REV. 1143, 1146–50 (2014).

⁶ 547 U.S. 388 (2006).

⁷ Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, IOWA L. REV. (forthcoming), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2632834 [<http://perma.cc/H4PA-9U5H>]; Kirti Gupta & Jay P. Kesan, *Studying the Impact of eBay on Injunctive Relief in Patent Cases* (July 10, 2015) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2629399 [<http://perma.cc/G482-8PE9>]. 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. 547 U.S. at 391.

⁸ See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1118 (1972) (noting that an injunction clarifies the parties' rights, allowing them to return to the bargaining table and negotiate privately).

⁹ See, e.g., *Siemens Med. Sols. USA, Inc. v. Saint-Gobain Ceramics & Plastics, Inc.*, 637 F.3d 1269, 1288 (Fed. Cir. 2011) (finding “substantial evidence to support a lost profits award” based on existence of “a two-supplier, high-end market”); *DSU Med. Corp. v. JMS Co.*, 471 F.3d 1293, 1309–10 (Fed. Cir. 2006) (noting that despite competitor’s “attempts 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”); *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1065 (Fed. Cir. 1983) (“[I]n a two-supplier market . . . [l]ost profits may be in form of diverted sales, eroded prices, or increased expenses.” (citation omitted)); Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 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.”).

defendant not infringed its patent?¹⁰ 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 noninfringing technology that the defendant could have employed instead. Thus, determining lost profits requires a court to answer a complex counterfactual—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 appeals—most notably the *Panduit* factors, after the case by the same name¹¹—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.¹² In those cases, the patent plaintiff will instead seek a “reasonable royalty,” which the court must determine.¹³ Over the past decade, courts have used a reasonable royalty as the measure of damages in 81% of cases.¹⁴ Calculating lost profits is by no means trivial, but it is substantially more determinate and straightforward than estimating a reasonable royalty.

¹⁰ See, e.g., *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, 1122 (Fed. Cir. 2003) (“To recover lost profits a patentee must show that ‘but for’ infringement it reasonably would have made the additional profits enjoyed by the infringer.”); *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.” (quoting *King Instrument Corp. v. Perego*, 737 F. Supp. 1227, 1241 (D. Mass. 1990)); see also SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 206–10 (2004).

¹¹ *Panduit Corp. v. Stahl Bros. Fibre Works*, 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.

¹² In some but hardly all cases, this will occur because the patent owner is a nonpracticing entity that does not produce a product and thus has no profits to lose. See Christopher A. Cotropia et al., *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649, 650–51 (2014); David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 380 (2012). On other occasions, the patent owner might simply believe that it is advantageous to pursue a reasonable royalty instead. Christopher B. Seaman, *Reconsidering the Georgia-Pacific Standard for Reasonable Royalty Patent Damages*, 2010 BYU L. REV. 1661, 1676–77.

¹³ 35 U.S.C. § 284 (2012); see also *Monsanto Co. v. McFarling*, 488 F.3d 973 (Fed. Cir. 2007). In effect, the Patent Act allows plaintiffs to select between the two options. Omri Ben-Shahar, *Damages for Unlicensed Use*, 78 U. CHI. L. REV. 7, 8 (2011).

¹⁴ PWC, 2015 PATENT LITIGATION STUDY, *supra* note 1, at 8 fig.8. That is to say, courts employed a reasonable royalty measure of damages in 81% of all cases in which the plaintiff was victorious and the court awarded damages. Fewer than 81% of all patent cases end in a verdict for the plaintiff.

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.¹⁵ Worse still, the legal guidance provided to courts and juries is almost comically counterproductive. When determining reasonable royalty damages, courts are instructed to consider the influential fifteen-step *Georgia-Pacific* test,¹⁶ a laundry list of factors 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.¹⁷ 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.¹⁸ 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.¹⁹ 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.

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 is that it deprives courts of the opportunity to have the parties decide the value of a

¹⁵ See Jarosz & Chapman, *supra* note 5.

¹⁶ These factors derive their name from *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (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.

¹⁷ *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1318 (Fed. Cir. 2011).

¹⁸ *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1327 (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, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 67 (Fed. Cir. 2012). The elimination of the 25% rule and the entire market value rule are two respects in which the Federal Circuit has made patents less valuable to their owners. It is not surprising that they appear in the context of remedies for infringement, an issue that is never adjudicated by the Patent Trademark Office (PTO) and is thus not subject to the inflationary effects of the PTO–Federal Circuit interaction. See generally Jonathan Masur, *Patent Inflation*, 121 *YALE L.J.* 470 (2011).

¹⁹ 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 et al., *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.”).

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 in *Georgia-Pacific* for use in calculating reasonable royalty damages.²⁰ Courts have relied upon existing licenses in calculating damages for decades,²¹ and the practice has grown even more prominent in recent years.²² At first blush this approach makes sense; if the courts must reconstruct a hypothetical royalty negotiation, actual preexisting 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.²³

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. If a patent holder had no means to enforce its patent, no licensee would pay royalties for a license. Accordingly, any negotiation over royalties will necessarily be based upon the outcome the parties expect should the case go to trial.²⁴ The parties will

²⁰ 318 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.").

²¹ See *Nickson Indus., Inc. v. Rol Mfg. Co.*, 847 F.2d 795 (Fed. Cir. 1988).

²² See, e.g., *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1227 (Fed. Cir. 2014); *VirnetX*, 767 F.3d at 1330–31; *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1315 (Fed. Cir. 2014); *Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1267 (Fed. Cir. 2013); *LaserDynamics*, 694 F.3d at 77–78 (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); *Waterton Polymer Prods. USA, LLC v. EdiZONE, LLC*, No. 2:12-CV-17 TS, 2014 WL 5782710 (D. Utah Nov. 6, 2014); *Ultratec, Inc. v. Sorenson Commc'ns, Inc.*, No. 13-cv-346-bbc, 2014 WL 5080411 (W.D. Wis. Oct. 9, 2014); *ReedHycalog UK, Ltd. v. Diamond Innovations Inc.*, 727 F. Supp. 2d 543 (E.D. Tex. 2010); *Datatrans Corp. v. Wells Fargo & Co.*, No. 2:06-CV-72 DF, 2010 WL 903259 (E.D. Tex. Mar. 4, 2010); *Spreadsheet Automation Corp. v. Microsoft Corp.*, 587 F. Supp. 2d 794 (E.D. Tex. 2007).

²³ See sources cited *supra* notes 4–5.

²⁴ See Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1993 (2007); 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*

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. 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 to maximize their joint gains against *C*. 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 must 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 counterproductive 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 reasonable royalty damages. The final Part of this Article considers a variety of potential solutions to these problems. 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 treat existing licenses as

Conflicts, 2 J. LEGAL STUD. 279 (1973); cf. William M. Landes, *An Economic Analysis of the Courts*, 14 J.L. & ECON. 61, 66–69 (1971) (discussing negotiations in the criminal justice system).

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.²⁵ The court must imagine a hypothetical negotiation between the plaintiff and the defendant, conducted at the moment before the defendant's infringement began,²⁶ 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.²⁷ This inquiry is both hypothetical and well after the fact, and it requires the court to forget many facts that it has learned and imagine many others that it cannot know.²⁸ It is naturally

²⁵ 35 U.S.C. § 284 (2012) (“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 . . .”).

²⁶ *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.”).

²⁷ *Lucent Techs., Inc. v. Gateway, Inc.* 580 F.3d 1301, 1325 (Fed. Cir. 2009); *see also* Paul M. Janicke, *Contemporary Issues in Patent Damages*, 42 AM. U. L. REV. 691, 722–23 (1993) (questioning “whether the concept [of hypothetical negotiation] has outlived its usefulness”).

²⁸ The difficulties that courts encounter in trying to reconstruct this hypothetical negotiation are further detailed in Parts II and III.

fraught with both error and complication.²⁹ The Federal Circuit³⁰ 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*.³¹ Almost needless to say, lower courts have found this to be anything but a straightforward task.³²

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,"³³ and the second is "[t]he rates paid by the licensee for the use of other patents comparable to the patent in suit."³⁴ 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.³⁵ First and foremost is the sensible rule that the existing license in question must involve a patent very similar (if not identical) to the patent in suit.³⁶ A comparison is not valuable if it is not apples-to-apples or close to

²⁹ 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." (quoting *Fromson v. W. Litho Plate & Supply Co.*, 853 F.2d 1568, 1574 (Fed. Cir. 1988))); see also Hasbrouck, *supra* note 5, at 193 ("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.").

³⁰ The Federal Circuit has exclusive appellate jurisdiction of final decisions of district courts in the area of patent law. 28 U.S.C. § 1295(a)(1) (2012).

³¹ 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

³² See, e.g., *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 911 (N.D. Ill. 2012) (Posner, J.) ("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?"), *aff'd in part, rev'd in part, vacated in part*, 757 F.3d 1286 (Fed. Cir. 2014); see also Bo Zeng, Note, *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 . . .").

³³ 318 F. Supp. at 1120.

³⁴ *Id.*

³⁵ See Zelin Yang, Note, *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 Federal Circuit has increased the level of scrutiny in assessing whether licenses are truly 'comparable.'").

³⁶ See *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1329 (Fed. Cir. 2009) ("[D]amages award[s] 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

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.³⁷ 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.³⁸ 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.³⁹ 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.⁴⁰

Second, and more important for present purposes, courts⁴¹ and commentators⁴² generally disfavor licenses that parties negotiated as

way similar to the technology being litigated here.”); *see also* *LaserDynamics, Inc. v. Quanta Comput., 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 [on] by the patentee in proving damages [be] sufficiently comparable to the hypothetical license at issue in suit.’” (second alteration in original) (quoting *Lucent Techs.*, 580 F.3d at 1325)).

³⁷ *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.”).

³⁸ *See ResQNet.com*, 594 F.3d at 869 (“Any evidence unrelated to the claimed invention does not support compensation for infringement but punishes beyond the reach of the statute. . . . 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.”); *see also* Zeng, *supra* note 32, 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.”).

³⁹ *See, e.g., ePlus, Inc. v. Lawson Software, Inc.*, 764 F. Supp. 2d 807, 814 (E.D. Va. 2011).

⁴⁰ *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. CIR. B.J. 547, 553 (2013) (“In view of *ResQNet* and *Lucent*, comparable licenses can only include licenses to the patent-in-suit itself, essentially removing from consideration licenses contemplated under *Georgia-Pacific* Factors 2 and 12.”).

⁴¹ *See, e.g., Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1078–79 (Fed. Cir. 1983) (“[S]ince the offers were made after the infringement had begun and litigation was threatened or probable, their terms ‘should not be considered evidence of an ‘established royalty’” (quoting *Panduit Corp. v. Stahl Bros. Fibre Works*, 575 F.2d 1152, 1164 n.11 (6th Cir. 1978))).

⁴² *See, e.g., Keele, supra* note 5, at 216 (arguing that licenses negotiated during litigation settlement are highly prejudicial and rarely probative); Tejas N. Narechania & Jackson Taylor Kirklín, *An Unsettling Development: The Use of Settlement-Related Evidence for Damages Determinations in Patent Litigation*, 2012 J.L., TECH. & POL’Y 1, 32–36 (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

settlements to ongoing litigation. Courts have reasoned that litigation distorts the licensing prices that defendants are willing to pay, skewing the prices upward.⁴³ 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.⁴⁴ For many years, courts flatly refused to consider any settlement under threat of litigation as reliable evidence of a patent's value,⁴⁵ or at minimum the courts greatly discounted the probative value of such a license.⁴⁶ Those types of settlements were often barred from evidence. However, in the 2010 case *ResQNet v. Lansa*,⁴⁷ the Federal Circuit appeared to invite consideration of licenses negotiated as settlements to litigation, though they would be awarded less evidentiary weight.⁴⁸ Since 2010, courts have occasionally considered licenses negotiated during litigation as indicators of patent value.⁴⁹ By and large, however, courts have continued to express a strong preference for licenses

minority viewpoint. See Michael J. Chapman, *Using Settlement Licenses in Reasonable Royalty Determinations*, 49 IDEA 313, 315 (2009); Conroy et al., *supra* note 5, at 295–96.

⁴³ *In re 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 5, at 205–06 (noting the effect of litigation costs on settlement value).

⁴⁴ *Lumen View Tech., LLC v. Findthebest.com, Inc.*, 24 F. Supp. 3d 329, 336 (S.D.N.Y. 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.”); *American Law Institute Study on Paths to a “Better Way”: Litigation, Alternatives, and Accommodation: Steering Committee Report*, 1989 DUKE L.J. 811, 823 (“[T]he threat of unreimbursable litigation costs can give weak claims a nuisance settlement value they do not deserve.”); J.P. Mello, Legal Update, *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.” (footnote omitted)).

⁴⁵ 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.”); JOHN SKENYON ET AL., *PATENT DAMAGES LAW & PRACTICE* § 3.17 (2013).

⁴⁶ 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.”).

⁴⁷ 594 F.3d 860 (Fed. Cir. 2010).

⁴⁸ *Id.* at 870–72.

⁴⁹ See, e.g., *Automated Merch. Sys. Inc. v. Crane Co.*, 279 F.R.D. 366, 372–73 (N.D. W. Va. 2011); *Small v. Nobel Biocare USA, LLC*, 808 F. Supp. 2d 584, 592 (S.D.N.Y. 2011); *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).

negotiated “in the wild”—outside of litigation.⁵⁰ These licenses form the bulk of sources to which courts have turned for guidance in setting reasonable royalty damages.⁵¹

LaserDynamics v. Quanta Computer provides an illustrative example.⁵² There, the parties introduced into evidence twenty-nine prior licenses of the patent in suit.⁵³ 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.⁵⁴ 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 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.⁵⁵

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.⁵⁶ The Federal Circuit held that the district court had abused its discretion in admitting the BenQ

⁵⁰ See, e.g., *Ravo v. Covidien LP*, 55 F. Supp. 3d 766, 775 (W.D. Pa. 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.’” (quoting *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F. Supp. 2d 147, 159 (D.R.I. 2009))); *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 *1 (N.D. Cal. Jan. 27, 2015) (“[S]uch licenses are hardly now per se admissible.”). Commentators, even those who have advocated giving nonzero weight to litigation settlements, have expressed similar preferences for nonlitigation licenses. See Conroy et al., *supra* note 5, at 296 (suggesting that licenses negotiated as settlements to litigation should be admitted, but arguing that their probative value should be vetted); Taylor, *supra* note 5, at 114–16 (arguing that licenses negotiated outside of litigation are more probative of patent value than those negotiated as settlements to litigation); Keele, *supra* note 5, at 207 (“The real question is not whether litigation licenses have probative value, but whether the probative value is large enough and reliable enough to be worth the effort of uncovering it.”).

⁵¹ See Yang, *supra* note 35, at 668–69.

⁵² 694 F.3d 51 (Fed. Cir. 2012).

⁵³ *Id.* at 78.

⁵⁴ *Id.*

⁵⁵ *Id.* at 58 (citation omitted).

⁵⁶ *Id.*

license into evidence.⁵⁷ It declared that the “unique coercive circumstances” surrounding this license made it a particularly unreliable gauge of the patent’s value.⁵⁸

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 licensee in court, the licensee would have no reason to negotiate a license in the first place.⁵⁹ Patent licenses are best understood as civil settlements in anticipation of possible litigation.⁶⁰

⁵⁷ *Id.* at 78.

⁵⁸ *Id.*

⁵⁹ Keele, *supra* note 5, 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.”); *see also* 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) (“[W]ith 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*, WASH. POST: THE SWITCH (Jan. 2, 2015), <http://www.washingtonpost.com/blogs/the-switch/wp/2015/01/02/the-man-who-invented-priceline-com-wants-to-shake-up-americas-patents/> [<http://perma.cc/D7SP-65LL?>] (“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 . . .”).

⁶⁰ *See* Lemley & Shapiro, *supra* note 24, at 1993 (analyzing licenses as litigation settlements); *see also infra* Section II.B (explaining that there is no reason to license a patent other than to avoid litigation).

Accordingly, the licensing fee for a given patent will depend upon the parties' expected outcomes at trial.⁶¹ That is not to say that licensing amounts are driven *only* by expected trial outcomes. The cost of going to trial (among many other factors) 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.⁶² 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.⁶³ 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.⁶⁴ 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 will be for a royalty R such that $p \times d - c < R < p \times d + c$.⁶⁵ The midpoint of that range is $p \times d$, and

⁶¹ Keele, *supra* note 5, at 205–06.

⁶² Lemley & Shapiro, *supra* note 24, at 2000–09 (analyzing mechanisms that can drive licensing prices upward).

⁶³ Keele, *supra* note 5, at 205–06 (“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 . . .”).

⁶⁴ To be clear, this highly simplified model is not meant to be perfectly representative of reality. There are undoubtedly many other factors that affect licensing and settlement, including the fact that litigation costs are not equivalent between plaintiffs and defendants, the threat of holdup, the possibility of enhanced damages, risk tolerance on both sides, strategic behavior by repeat players, the time value of money, the fact that the defendant might be insured, and the asymmetric risk that the court might invalidate the patent—to name just a few. Yet by oversimplifying in this fashion, I am stacking the deck *in favor* of the manner in which courts use licenses, and *against* this Article’s argument that licenses are not reliable indicators of patent value. The more that a license is influenced by factors other than the value of the patent and the underlying technology, such as the factors listed above, the *less* useful the license will be as a guide to patent value.

For that matter, the parties might arrive at a bargained-for settlement price without agreeing on either p or d . (One party might believe that p is 100% and d is \$10 million, while the other party might believe that p is 50% and d is \$20 million.) If the parties to the license do not agree on d , then the license can hardly be used to value the patent once it is found valid and infringed. Here, by assuming that the parties to a license agree on p and d , I am again stacking the deck against this Article’s argument that existing licenses are not useful measures of damages. A contrary assumption would only make the Article’s argument even stronger.

⁶⁵ Cf. Landes, *supra* note 24, at 67–69 (analyzing a model of criminal trial settlement in which litigation costs create bargaining space within which parties can settle); Posner, *supra* note 24, at 417–18 (same).

thus the parties should be expected to agree upon a royalty in the vicinity of $p \times d$. Thus, $R \approx p \times d$.

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 $\$20 \text{ million} \times 25\% - \$2 \text{ million} = \$3 \text{ million}$. The putative licensee's expected trial outcome is $-\$20 \text{ million} \times 25\% - \$2 \text{ million} = -\$7 \text{ million}$. 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.⁶⁶ 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.⁶⁷

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.⁶⁸ 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.⁶⁹ In that

⁶⁶ John Bronsteen, Christopher Buccafusco & Jonathan S. Masur, *Hedonic Adaptation and the Settlement of Civil Lawsuits*, 108 COLUM. L. REV. 1516, 1521–22 (2008).

⁶⁷ See Taylor, *supra* note 5, at 115 (“Negotiated royalties thus include discounts based on risk borne by the patent owner associated with proving liability, relief, and enforceability . . .”).

⁶⁸ *Lucent Techs., 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.”). This means that under governing Federal Circuit law, the court must ignore everything that has occurred since the moment the infringement began, including all more recent developments with the patented technology. This is a tall order. Scholars have proposed sophisticated alternatives to this approach, though courts have not yet adopted them. See, e.g., Norman Siebrasse & Thomas F. Cotter, *A New Framework for Determining Reasonable Royalties in Patent Litigation*, U. FLA. L. REV. (forthcoming 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2528616 [<http://perma.cc/M6LM-6VQZ>].

⁶⁹ *Lucent Techs.*, 580 F.3d at 1325 (“The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed.”); see also *LaserDynamics, Inc. v. Quanta Comput., Inc.* 694 F.3d

sense, the trial has officially resolved any ambiguity or uncertainty that previously surrounded the patent. As a matter of law, *P* has prevailed over *L*₂, with all of the attendant consequences.⁷⁰

The court is thus faced with the task of reconstructing the price that *L*₂ 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 *L*₁ 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 *L*₁ 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 *L*₁ 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 *L*₁—\$5 million—when calculating damages in the *P* v. *L*₂ litigation. The parties negotiated the \$5 million royalty with the understanding that there was some (likely nonzero) probability that the patent would not be found valid and infringed. Now that *P* has prevailed in its suit against *L*₂, that probabilistic inquiry has been resolved in favor of *P*. 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 *L*₁ as evidence of damages in the litigation against *L*₂, it must determine the fee *P* and *L*₁ 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 *L*₁ believed were their probabilities of success at trial.

51, 77 (Fed. Cir. 2012) (“[T]he premise of which assumes . . . validity and infringement of the patent not being disputed.”).

⁷⁰ 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.

That is, the court is attempting to determine d —the parties’ view of 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.⁷¹ 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.⁷² 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.

The problem is caused in large part because the court, in reconstructing the hypothetical negotiation, must assume that the parties agreed the patent was valid and infringed. This is contrary to what the parties actually believed, which is what makes it necessary for the court to determine their actual beliefs regarding the likelihood the patent would be found valid and infringed.

Yet it is easy to see that it would be error for the courts to drop the rule that the patent should be assumed valid and infringed for purposes of the hypothetical negotiation. That is, it is easy to see that it would be error for the court to simply assess damages against L_2 equal to the amount of the

⁷¹ 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.

⁷² This point is developed further in Section III.B.

prior license—here, \$5 million.⁷³ L_2 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 . But if it only faced damages of \$5 million if it *lost* at trial, why would it be willing to pay \$5 million for a license?⁷⁴ The answer is that it would not. Going to trial would represent a “heads I win, tails we tie” situation for L_2 . The best-case scenario would be for L_2 to win at trial and owe P nothing; the worst-case scenario would be for it to lose and owe P just \$5 million, the amount that L_1 paid P for the license.

Accordingly, L_2 would only be willing to pay P a royalty that is discounted to reflect the probability that P will win at trial. Imagine that P 's probability of success in a suit against L_2 is still only 25%. (The litigation between P and L_1 might have established that the patent is almost certainly valid, but L_2 's product might not infringe.)⁷⁵ In this case, L_2 's expected outcome, should it go to trial, is only \$5 million \times 25% = \$1.25 million. P and L_2 will likely settle for approximately that amount. This stands in stark contrast to the \$5 million license that P negotiated with L_1 . The value of the patent has been artificially depressed by the court's failure to adhere to the rule that patents must be assumed valid and infringed for purposes of constructing the hypothetical negotiation.

Stated more formally, P and L_1 negotiated a royalty R where $R \approx d \times p$. Suppose the court adopts a legal rule that it will award damages in the amount of R , rather than attempting to determine d . L_2 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 reduce the value of the patent and the royalties that patent holders will receive.⁷⁶

⁷³ *Contra* Cotter, *supra* note 40, at 752–53 (arguing precisely the opposite).

⁷⁴ This analysis deliberately ignores litigation costs, which are discussed earlier.

⁷⁵ 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 nonmutual 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. *See* Shelcore, Inc. v. Durham Indus., Inc., 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”: *Toward 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. *Gillette Co. v. S.C. Johnson & Son, Inc.*, 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.”).

⁷⁶ *See, e.g.*, *Ericsson, Inc. v. D-Link Sys. Inc.*, 773 F.3d 1201, 1225–28 (Fed. Cir. 2014) (making this error); *VirmetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1330–31 (Fed. Cir. 2014) (same); *Versata Software, Inc. v. SAP Am., Inc.*, 717 F.3d 1255, 1267–68 (Fed. Cir. 2013) (same); *LaserDynamics, Inc.*

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.⁷⁷ When courts use existing licenses to determine damages at trial, the tiger is chasing its own tail. Trial outcomes cannot depend on licenses if licenses depend on trial outcomes.⁷⁸

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.⁷⁹

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

v. Quanta Comput., 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).

⁷⁷ Lemley & Shapiro, *supra* note 24, at 2021–22 (discussing the effects of bargaining in the shadow of trial on licensing behavior); *see also* John M. Golden, *Principles for Patent Remedies*, 88 TEX. L. REV. 505, 566 (2010).

⁷⁸ *See* Mark Schankerman & Suzanne Scotchmer, *Damages and Injunctions in Protecting Intellectual Property*, 32 RAND J. ECON. 199, 200 (2001); Taylor, *supra* note 5, at 115–16.

⁷⁹ *See* Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMPETITION L. & ECON. 535, 553–54 (2008) (demonstrating the decline in licensing values for a two-period licensing game).

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 \$780,000.⁸⁰ As P negotiates sequentially 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.⁸¹ The downward spiral is driven entirely by the parties' belief that the court will improperly rely upon prior licenses as evidence of the patent's value.⁸²

As much as courts would like to rely upon market measures in estimating damages, there is no reliable route out of this circularity.⁸³ 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. 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

⁸⁰ \$781,250, to be exact.

⁸¹ 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.

⁸² 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 24, 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 mistakes, 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.

In addition, other scholars have pointed out that under certain circumstances it does not matter whether particular damage awards are too high or too low, only that average expected damages are correct. *See* Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713 (1996). However, the problem here is that the use of existing licenses to calculate patent damages will consistently bias damages downward. *See* Golden, *supra* note 77, at 569.

⁸³ *Contra* Taylor, *supra* note 5, at 142–43 (suggesting that making certain assumptions about infringement and validity offers 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.

licensing it.⁸⁴ It is of course possible that the patent holder would transfer technical knowledge along with a license for the patent,⁸⁵ and this latent knowledge may well be more valuable than any technical information disclosed by the patent itself.⁸⁶ 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 more than just patent rights as a guide to patent damages in litigation.⁸⁷ 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.⁸⁸

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

⁸⁴ See Robin Feldman & Mark A. Lemley, *Does Patent Licensing Mean Innovation?* 27 (Stanford Law Sch. John M. Olin Program in Law & Econ., Working Paper No. 473, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2565292 [<http://perma.cc/Q3EW-S6BR>] (surveying parties involved in patent licensing and finding that licenses rarely involve the transfer of technical information).

⁸⁵ See Peter Lee, *Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer*, 100 CALIF. L. REV. 1503 (2012) (describing the transfer of tacit information that often accompanies patents).

⁸⁶ See Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 548–49 (2012) (surveying scientists on their use of the information disclosed in patents and finding that patents are less than perfect disclosure devices).

⁸⁷ See, e.g., *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 870 (Fed. Cir. 2010) (“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.”).

⁸⁸ *Oracle Am., Inc. v. Google Inc.*, 847 F. Supp. 2d 1178, 1187 (N.D. Cal. 2012) (“Damages experts cannot use non-comparable licenses, with little relationship to the claimed invention or parties-in-suit, as a basis for calculating reasonable royalties.”); see also *Access Int’l, Inc. v. Savi Techs., 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.’ Therefore, such analysis fails to ‘carefully tie proof of damages to the claimed invention’s footprint in the market place.’” (alteration in original) (citation omitted) (quoting *ResQNet.com*, 594 F.3d at 869)).

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 the possibility of holdup, assuming the defendants have already invested in producing the infringing good.⁸⁹ 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.⁹⁰ And in practice, injunctions are sufficiently rare that it is unlikely that a court will find 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 defendant? Given the turn against injunctions—the point with which this Article begins—this circumstance 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 licenses. These factors include “[t]he nature and scope of the license,” “[t]he established profitability of the product,” “[t]he utility and advantages of the patent . . . over the old modes or devices,” “[t]he extent to which the infringer has made use of the invention[] and . . . the value of that use,” and so forth.⁹¹ 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.

⁸⁹ Lemley & Shapiro, *supra* note 24, at 1993 (analyzing various dynamics that can lead to excessive licensing royalties and patent damages).

⁹⁰ See Norman V. Siebrasse & Thomas F. Cotter, *The Value of the Standard* 9–10 (Univ. of Minn. Law Sch. Legal Studies Research Paper Series, Paper No. 15-21, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2636445 [<http://perma.cc/2RX9-8PS7>]. The problem of holdup will persist regardless of the timing of the suit for infringement and the behavior it covers. This is the case even when liability is only triggered when an infringer is put on notice of a patent, as is the case in suits for indirect infringement under 35 U.S.C. § 271(b) and (c), thus forcing the patent holder to engage in a costly search to enforce the patent. See Jonathan S. Masur, *Patent Liability Rules as Search Rules*, 78 U. CHI. L. REV. 187 (2011). Even in such cases, the alleged infringer may have already made technology-specific investments that create the possibility of holdup.

⁹¹ *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970); see also Taylor, *supra* note 5, at 85–89 (proposing a similar approach and using the language differentiating between the “value of the patent rights” and the “value of the patented technology”).

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 deciding the case, the arbitrator will often 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. 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 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, jail time, reputational sanctions, or any number of other factors beyond the price a thief will be forced to pay. There is no real circularity. Similarly, one could imagine a world in which housing prices on the private market depended on the "just compensation" a government would be forced to pay if it took the property in eminent domain. If this were the case, a circularity would arise because just compensation typically depends on market prices. The reality, however, is that governments take property through eminent domain only very rarely. The probability that a given property is ever subject to eminent domain is very low. Accordingly, for the most part, private parties will buy and sell property without considering the compensation it might fetch in an eminent domain proceeding. The general irrelevance of eminent domain to private market prices is what avoids creating a circularity in the housing market.

Patent law has no such escape. 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, and it does so with a sharpness that no other area of law can match.

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.⁹² 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.⁹³ 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 body of literature in the law of contracts on third-party beneficiaries to contracts.⁹⁴ 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

⁹² *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1357 (Fed. Cir. 2012) (“The 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 Techs., Inc. v. Gateway, Inc.* 580 F.3d 1301, 1324 (Fed. Cir. 2009) (“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.”).

⁹³ 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).

⁹⁴ *See, e.g.*, HOWARD O. HUNTER, MODERN LAW OF CONTRACTS §§ 20:1–20 (rev. ed. 2014); 9 JOHN E. MURRAY, JR., CORBIN ON CONTRACTS §§ 43.1–2 (rev. ed. 2014); 13 SAMUEL WILLISTON & RICHARD A. LORD, A TREATISE ON THE LAW OF CONTRACTS §§ 37.1–64 (4th ed. 2013); Melvin Aron Eisenberg, *Third-Party Beneficiaries*, 92 COLUM. L. REV. 1358 (1992); Anthony Jon Waters, *The Property in the Promise: A Study of the Third Party Beneficiary Rule*, 98 HARV. L. REV. 1109 (1985); Robert S. Adelson, Note, *Third Party Beneficiary and Implied Right of Action Analysis: The Fiction of One Governmental Intent*, 94 YALE L.J. 875 (1985).

automobile for more than it is worth (unless *A* plans to commit fraud).⁹⁵ The greater *A*'s insured amount, the higher the premium that *A* must pay.⁹⁶ *A* has no reason to pay a premium to purchase insurance greater than the amount of loss that *A* will actually suffer.⁹⁷

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. A court might attempt to assess that value independently, by scrutinizing the make, model, year, and 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. Depending upon the additional premium that *A* must pay to insure the automobile for \$10,000 rather than \$8000 and *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.⁹⁸ 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.

⁹⁵ 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).

⁹⁶ 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, 1793 & n.27 (1995) (explaining the manner in which premiums are typically calculated).

⁹⁷ 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.

⁹⁸ This can occur in other contractual contexts as well. See Jim Leitzel, *Damage Measures and Incomplete Contracts*, 20 RAND J. ECON. 92, 97 (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).

The litigation related to the attacks on the World Trade Center on September 11, 2001, offers an example of how these incentives might operate.⁹⁹ 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.¹⁰⁰ 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.¹⁰¹ 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.¹⁰² As the Trade Center's replacement cost was much higher, this was the full recovery to which the WTCP would be entitled.¹⁰³ Here, as in the hypothetical example above, the court relied upon the arm's length bargain between WTCP and the Port Authority to establish the market value of the Trade Center. As the court explained, "a recent sale price for the subject asset, negotiated by [the] parties at arm's length, is the 'best evidence' of its market value."¹⁰⁴

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.¹⁰⁵ 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 price is rarely the only term in a contract. The lease may have committed the Port Authority to provide related services, financing for the

⁹⁹ *In re* Sept. 11th Litig., 590 F. Supp. 2d 535 (S.D.N.Y. 2008).

¹⁰⁰ *Id.* at 536.

¹⁰¹ *Id.*

¹⁰² *Id.* at 540–44. New York law, which governed the case, provided that a tort plaintiff whose property was damaged is 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 (N.Y. 1892)).

¹⁰³ *Id.* at 541–43.

¹⁰⁴ *Id.* at 547 (quoting *Schonfeld v. Hilliard*, 218 F.3d 164, 178 (2d Cir. 2000)).

¹⁰⁵ *Id.* at 538–39.

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: $(\$100 \text{ million} \times 3\%) + \$98 \text{ million} = \$101 \text{ million}$, 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.¹⁰⁶

These examples may seem farfetched 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.¹⁰⁷ But its applicability 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 intellectual property for reasonable sums that approximate expected trial outcomes. The result could be a decrease in licensing and an increase in socially costly trials.

¹⁰⁶ There are other contexts in which similar types of third-party problems can arise. For instance, it is sometimes necessary to value goods sold or transferred within related legal entities, as when a parent corporation sells a component to a subsidiary. There is no true market price, because the parties are not bargaining at arm's length. Nonetheless, that sale may be subject to taxation in a particular jurisdiction, and the "transfer price"—the price the parent corporation "charges" the subsidiary—is the basis for the tax. Parties have obvious incentives to deflate internal transfer prices (to avoid taxes), and so courts will often look to third-party transactions to set a price. For instance, if the parent corporation sold the same component to an unrelated third party, the court might use the price of that transaction to set the transfer price for the component. The problem, of course, is that this creates an incentive for the parent corporation to sell to the third party at an artificially low price in order to create tax savings when it sells the same component to its subsidiary.

¹⁰⁷ See Saul Levmore, *Self-Assessed Valuation Systems 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).

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.¹⁰⁸ 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 *L₁*, make available its employees to assist *L₁* in utilizing the patented technology,¹⁰⁹ promise *L₁* a discount on future patent licenses, 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 *L₂* or *L₃*.

Variations abound. *P* might 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.¹¹⁰ 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 pay. *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.

Alternatively, *P* and *L₁* might negotiate a license that contains a restrictive geographic limitation that is in fact meaningless to *L₁*. For instance, the license might permit *L₁* to sell only in California, but *L₁* might do business only in California in the first place. When it comes time for a court to interpret the *P*-*L₁* license, *P* might falsely claim that the price of the license was discounted dramatically because of the geographic limitation. A patent owner might similarly employ a meaningless restriction on the field or scope of the license—“This license only applies to the manufacture of automobile components.”—for a firm that is only in the business of manufacturing automobile components. The patent holder

¹⁰⁸ See 3 JOHN JAROSZ & ROBERT GOLDSCHIEDER, ECKSTROM'S LICENSING IN FOREIGN AND DOMESTIC OPERATIONS § 5:1 (2015) (“There is undoubtedly a large number of naked patent licenses regularly granted which are unaccompanied by rights to use other forms of intellectual property.”).

¹⁰⁹ See generally Lee, *supra* note 85, at 1516 (arguing that patent license can facilitate this type of knowledge transfer).

¹¹⁰ See Keele, *supra* note 5, at 228 (describing a similar type of arrangement).

might even editorialize within the licensing document itself in an attempt to convince a future court that the true value of the patent is higher. A patent holder could write into a license, “This license is being granted on favorable terms due to the significant uncertainty regarding whether the licensee’s product infringes the patent.”

These concerns are not hypothetical. In 2013, Microsoft and Motorola found themselves in litigation over the royalty Microsoft owed Motorola for licenses to its patents on WiFi technology.¹¹¹ Motorola argued that Microsoft should pay a 2.25% royalty, and to buttress this argument, it introduced into evidence an agreement it had negotiated with VTech—another manufacturer—at that rate. The court noted, however, that VTech had actually paid Motorola relatively little under the license—thousands, not millions, of dollars—which implied that the royalty rate may have been relatively unimportant to VTech.¹¹² Moreover, Motorola and VTech had reached agreement “on the eve of a hearing . . . at which Motorola relied on the agreement as evidence of the reasonableness of its royalty demands” against Microsoft.¹¹³ Though it did not say so explicitly, the court appeared to believe that Motorola had negotiated the VTech license in an attempt to inflate the perceived value of its patent. It thus rejected the VTech license as a valid standard of comparison.¹¹⁴

Similarly, in *Ericsson, Inc. v. InterDigital Communications Corp.*,¹¹⁵ 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.¹¹⁶ InterDigital then succeeded in negotiating a lucrative license with Ericsson and demanded a substantial payment from Nokia. Nokia, in return, accused InterDigital of strategically structuring its license with Ericsson so as to extract a higher payment from Nokia. 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 and explicitly on the agreement between InterDigital and Ericsson. Nonetheless, the same types of concerns pervade both situations.

¹¹¹ Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217 (W.D. Wash. Apr. 25, 2013).

¹¹² *Id.* at *67.

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ 418 F.3d 1217 (Fed. Cir. 2005).

¹¹⁶ *Id.* at 1219.

Because of these concerns, courts generally do their best to prevent arrangements that encompass more than just patent licenses 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.¹¹⁷ As noted, 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 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%. Opportunities for patent holders to inflate the licensing price of a patent through contract to the same degree are most likely rare. 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.

¹¹⁷ See *supra* notes 35–37 and accompanying text.

III. 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.¹¹⁸ 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 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 that licenses negotiated as litigation settlements will be *more* accurate 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.¹¹⁹ The closer the plaintiff is to being 100% certain of prevailing, the more accurate the value

¹¹⁸ See *supra* notes 59–71 and accompanying text.

¹¹⁹ 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 John Dragseth, Note, *Coerced Waiver of the Attorney-Client Privilege for Opinions of Counsel in Patent Litigation*, 80 MINN. L. REV. 167, 171–72 (1995); see also 35 U.S.C. § 284 (2012) (granting courts the authority to impose treble damages). The threat of treble damages would distort the licensing price.

of the license. 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 ruling¹²⁰ or had its invalidity defenses thrown out on summary judgment¹²¹ 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—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. 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.¹²²

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 ended a lawsuit 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 of the patent. This is precisely because BenQ was so likely to lose at trial.¹²⁵ Six million dollars is the

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

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

¹²² Another advantage of using licenses negotiated as settlements to trials is that by the time the license was negotiated, a substantial proportion of litigation costs will already have been sunk and should not affect the amount of the license. *See supra* notes 41–42 and accompanying text. This is yet another respect in which the courts’ preference for licenses negotiated outside of litigation is backwards. The less the parties have already spent on litigation, the more that litigation costs could distort licensing terms. Licenses negotiated as settlements to litigation—after the parties have already invested some resources in litigating—should be *less* distorted by potential litigation costs than licenses negotiated before litigation has begun.

¹²³ 694 F.3d 51, 58 (Fed. Cir. 2012).

¹²⁴ *See id.* (“The district court had allotted BenQ one-third less time than Mr. Kamatani for *voir dire*, opening statement, and closing argument . . .”).

¹²⁵ Of course, it is possible that the BenQ settlement was inflated by the prospect that the court might impose treble damages on BenQ for willful infringement or force BenQ to pay *LaserDynamics*’s attorneys’ fees. But the case provides no indication of this. Willful infringement generally has little to do with a party’s (and its lawyers’) behavior at trial. It can only be based upon conduct that preceded the filing of a lawsuit for infringement. *See, e.g.,* *Pacing Techs., LLC v. Garmin Int’l, Inc.*, No. 12-CV-1067 BEN (WMC), 2013 WL 444642, at *3–4 (S.D. Cal. Feb. 5, 2013). Attorneys’ fees, which at the time *LaserDynamics* was decided could have been awarded on the basis of litigation misconduct, are a more realistic possibility. *See* *Brooks Furniture Mfg., Inc. v. Dutailier Int’l, Inc.*, 393 F.3d 1378, 1381 (Fed. Cir. 2005), *abrogated by* *Octane Fitness, LLC v. Icon Health & Fitness, Inc.*, No. 12-1184, slip op. (U.S. Apr. 29, 2014). However, it is worth noting that the district court had *already* fined BenQ \$500,000 for misconduct during the litigation. *LaserDynamics*, 694 F.3d at 58. This sum was a sunk

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.

In fact, even a license negotiated in the midst of a trial the plaintiff was losing can still be highly probative under certain conditions. Suppose the plaintiff loses important claim construction and summary judgment motions and settles immediately afterward. If a later court can reconstruct the parties' beliefs as to the plaintiff's likelihood of victory by reading the claim construction and summary judgment rulings, it can use that information—plus the amount of the settlement—to reconstruct the value of the patent. Of course, it might be difficult to discern the plaintiffs' beliefs from the cold record. But at minimum, the fact that the earlier court decided some legal issues and left a written record of the decision provides a great deal more information than is typically present when a license is negotiated outside of litigation.

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.¹²⁶ 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 plaintiffs and poorly for defendants.

cost that BenQ would be forced to pay regardless of whether it settled, so it could not have affected the settlement amount. And BenQ might reasonably have expected that no further sanction would be forthcoming, given that it had already been made to pay.

¹²⁶ If the patent is invalid, it is invalid with respect to all potential infringers. See Greene, *supra* note 75, at 2. But some putative infringers might make products that almost certainly infringe, while others might manufacture products that are highly unlikely to do so. Similarly, some licenses may have been negotiated under greater or lesser threats of holdup, though the holdup concern diminishes as injunctions become rarer. All things being equal, litigation settlements will typically involve a greater threat of holdup than licenses outside of litigation because the defendant is already engaging in potentially infringing conduct. But the relationship is not absolute: it is possible for a litigation settlement to involve zero holdup risk (if the defendant has made no product-specific investments), while any given license taken outside of litigation could involve substantial holdup risk (if the defendant has made substantial product-specific investments).

This is why courts' and commentators' hostility toward litigation settlements as a gauge of patent damages is not just misguided but backward.¹²⁷ 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 assess damages in that amount.¹²⁸ 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?¹²⁹ The only truly reliable information on this question is in the possession of the parties to the license, 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.¹³⁰ 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.¹³¹ Even where the relevant information is

¹²⁷ See sources cited *supra* notes 41–42.

¹²⁸ See Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 641–43 (2010) (suggesting that royalties should be “enhanced” when translating existing licenses into patent damages, but providing no guidance on what that enhancement should be based on or how to calculate it); Taylor, *supra* note 5, at 131 (suggesting that “adjustments” be made to license values, without specifying what those adjustments might be); see also Jarosz & Chapman, *supra* note 5, at 797 & n.133. None of these scholars recognize or analyze the advantages and problems involved in such an approach as detailed in this Section.

¹²⁹ See *supra* Section II.A.

¹³⁰ See generally *Burlington Indus. v. Exxon Corp.*, 65 F.R.D. 26 (D. Md. 1974) (defining and describing the scope of the attorney–client privilege); *In re Rivastigmine Patent Litig.*, 237 F.R.D. 69 (S.D.N.Y. 2006) (same); see also Dragseth, *supra* note 119 (analyzing situations in which parties can be forced to disclose otherwise privileged information).

¹³¹ One radical solution might be to allow discovery of attorney work product involved in valuing patents for licensing. This would allow courts to discover the subjective probabilities that parties attached to the likelihood a patent would be found valid and infringed. However, such a breach of the attorney–client privilege would likely create other significant problems and represents a substantial departure from well-established law.

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 particular incentive to testify forthrightly and there is 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 about the parties' beliefs, at the time the license was negotiated, of the probability that the patent owner would prevail at trial.¹³² Or, for that matter, the court might hire its own expert or special master to provide an independent evaluation of the same question.¹³³ In essence, the court would construct a miniature trial on the merits of the prior license in an attempt to recreate the terms of the bargain that the parties intended. Indeed, it appears that some patent damages experts have begun suggesting multipliers in their expert reports.¹³⁴ 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

¹³² Cf. *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 905 (N.D. Ill. 2012) (Posner, J.) (discussing the role that the damages expert plays in establishing reasonable royalty damages at trial).

¹³³ This practice is relatively rare, but it does occur on occasion. One instance was the *Apple v. Motorola* litigation before Judge Posner. See Order of March 29, 2012, No. 1:11-cv-08540 (N.D. Ill. Mar. 29, 2012) (Posner, J.), <https://cases.justia.com/federal/district-courts/illinois/ilndce/1:2011cv08540/262961/693/0.pdf?ts=1376969325> [<https://perma.cc/867Z-9JC3>] (order announcing court-appointed expert witness); see also FED. R. EVID. 706.

¹³⁴ 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 Elecs., Inc.*, Nos. 2:07-CV-565-TJW-CE, 2:08-CV-478-TJW, 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 Elecs.*, No. C06-1711RSL, 2013 WL 8844098, at *4 (W.D. Wash. Mar. 11, 2013) (“[T]here is no indication that Dr. Kerr’s chosen method of adjustment is anything more than an arbitrary multiplier based on factors and statistics having nothing to do with the patents or parties in this case.”).

possessed.¹³⁵ 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 consistently be 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.¹³⁶ 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 the product that is 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 difficulty accessing this private information. L_1 is not a party to the lawsuit and can be served only with certain types of discovery.¹³⁷ 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 multiplier—perhaps a multiplier of 1—to the prior license when calculating damages. In other words, the defendant will argue that when P

¹³⁵ 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).

¹³⁶ See Timothy Flynn, Jr., Note, *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.").

¹³⁷ 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). Courts are also more likely to quash subpoenas of documents directed at third parties than parties to a suit, 7 ROBERT A. MATTHEWS, JR., ANNOTATED PATENT DIGEST § 41:187 (2008), and more likely to require the party requesting discovery to pay the third party's costs. See *Linder v. Calero-Portocarrero*, 251 F.3d 178, 182–83 (D.C. Cir. 2001); *Legal Voice v. Stormans, Inc.*, 738 F.3d 1178 (9th Cir. 2013).

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 multiplier, 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.¹³⁸ 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.¹³⁹

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—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.¹⁴⁰ People too often fall prey to motivated reasoning—the tendency to believe selectively those facts and arguments that support their prior conclusions and dispositions.¹⁴¹ Most judges or jurors would be hard-pressed to give a fair hearing to an expert who claims that their decision was less than 100% foreordained. 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 thus not surprising that I have been unable to

¹³⁸ See *Teledyne Indus., Inc. v. NLRB*, 911 F.2d 1214, 1217–20 (6th Cir. 1990) (analyzing and describing judicial, equitable, and collateral estoppel).

¹³⁹ 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.

¹⁴⁰ See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 653–54 (1999); Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480 (1990); 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, 444–48 (2012).

¹⁴¹ DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* (2011); Eric A. Posner & Cass R. Sunstein, *Institutional Flip-Flops* 18 (Univ. of Chi. Law Sch. Pub. Law & Legal Theory, Working Paper No. 501, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2553285 [<http://perma.cc/K4QB-HC5N>] (discussing motivated reasoning in the context of institutional questions).

locate even a single instance of a court applying or discussing the use of a multiplier in a published damages opinion, even though many have used licenses to set reasonable royalty damages.¹⁴²

C. A Standard Multiplier

Instead of attempting to calculate a multiplier for any given license or case, courts could instead apply a standard, fixed multiplier to all licenses across all cases. For instance, patent plaintiffs prevail in approximately 25% of all patent cases.¹⁴³ 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,¹⁴⁴ then the appropriate multiplier is four.¹⁴⁵ Courts have thus far appeared resistant to using a standard multiplier on the ground that it lacks a connection to the case at bar.¹⁴⁶ 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.¹⁴⁷

The use of a standard multiplier would create other 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

¹⁴² See *supra* Part I.

¹⁴³ Mark A. Lemley, *The Fractioning of Patent Law*, in *INTELLECTUAL PROPERTY AND THE COMMON LAW* 504, 505 (Shyamkrishna Balganesh ed. 2013).

¹⁴⁴ 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.

¹⁴⁵ $1 / 0.25 = 4$.

¹⁴⁶ See, e.g., *Avocent Redmond Corp. v. Rose Elecs.*, No. C06-1711RSL, 2013 WL 8844098, at *4-5 (W.D. Wash. Mar. 11, 2013) (prohibiting an expert from testifying in favor of a standard multiplier).

¹⁴⁷ See *supra* Section III.B.

undercompensation would be a problem.¹⁴⁸ 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 agreed that the patent was 75% likely to be found valid and infringed, the appropriate multiplier (in the P v. L_2 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, as Anup Malani and I have argued in prior work.¹⁴⁹ 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.¹⁵⁰ 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

¹⁴⁸ Cf. Anthony Niblett, *Case-by-Case Adjudication and the Path of the Law*, 42 J. LEGAL 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).

¹⁴⁹ See Anup Malani & Jonathan S. Masur, *Raising the Stakes in Patent Cases*, 101 GEO. L.J. 637 (2013) (demonstrating that it can be socially beneficial to impose augmented penalties against parties who assert weak patents and give augmented rewards to parties who assert strong patents).

¹⁵⁰ See, e.g., T. Christian Landreth, Recent Development, *The Fight Against “Patent Trolls:” Will State Law Come to the Rescue?*, 15 N.C. J.L. & TECH. ONLINE 100, 101–04 (2014) (describing the practice of sending demand letters to entities that are likely not infringing in the hope of negotiating small settlements).

probably not especially harmful.¹⁵¹ At least at first glance, this approach has much to recommend it.

Yet there remains 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.¹⁵² 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 multiplier of 4.¹⁵³ 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 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.¹⁵⁴

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

¹⁵¹ See Malani & Masur, *supra* note 149, at 641–42 (arguing that it makes economic sense to overreward prevailing patent owners in order to compensate them for the possibility that a court might have errantly invalidated their patents); see also Jonathan S. Masur, *Costly Screens and Patent Examination*, 2 J. LEGAL ANALYSIS 687 (2010) (describing the social costs of bad patents and arguing that the Patent and Trademark Office should endeavor to prevent them from being granted); David Fagundes & Jonathan S. Masur, *Costly Intellectual Property*, 65 VAND. L. REV. 677 (2012) (same).

¹⁵² \$10 million × 0.75 = \$7.5 million.

¹⁵³ 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.

¹⁵⁴ See Malani & Masur, *supra* note 149, at 652–53 (explaining the social harm that can be caused by dramatic overcompensation of patent owners, even when their patents are valid and infringed).

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 .¹⁵⁵ 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.

Again, it might be appropriate to undercompensate parties who assert weaker patents.¹⁵⁶ 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.¹⁵⁷ 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, such as trademarks or tacit knowledge. The result would be to eliminate the license as a useful measure of patent value, using an inefficient and socially costly transaction.

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.

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.¹⁵⁸ Without some mechanism for breaking this circularity, dynamic under- and overcompensation will frustrate any attempt to use licenses as a reliable

¹⁵⁵ 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.

¹⁵⁶ See Malani & Masur, *supra* note 149, at 657 (analyzing the effects of undercompensation on patent owners).

¹⁵⁷ 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.

¹⁵⁸ See *supra* Section II.B.

measure of patent damages over time.¹⁵⁹ The prospects for finding a true market measure of patent value do not seem promising.¹⁶⁰

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 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.¹⁶¹ 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

¹⁵⁹ It is extremely common for a patent holder to approach multiple parties sequentially and demand licenses. *See, e.g.*, *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 58 (Fed. Cir. 2012) (noting that there were twenty-nine licenses on record). The dynamic problems caused by licensing-litigation circularity are likely to exist across a broad swath of the relevant patents.

¹⁶⁰ 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* (2015) (unpublished manuscript) (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 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.

¹⁶¹ To my knowledge, Thomas Miles was the first to offer this observation.

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 leads astray.

