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Damages for Indirect Patent Infringement

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DAMAGES FOR INDIRECT PATENT INFRINGEMENT

DMITRY KARSHTEDT*

ABSTRACT

In many patent infringement cases, the only practical way that the plaintiff can obtain relief is on a theory of secondary liability, which is generally referred to as indirect infringement. The remedy in patent cases frequently includes damages for past infringement. Because jury verdicts in patent cases can amount to hundreds of millions of dollars, patent damages have become a hotly litigated issue. Nevertheless, much to the frustration of the litigants in these high-stakes lawsuits, the courts continue to struggle to clarify how damages for indirect infringement should be determined.

The Court of Appeals for the Federal Circuit, which has exclusive appellate jurisdiction over patent cases, has deepened the confusion over calculating damages. Two opinions from the Federal Circuit have made contradictory pronouncements on the issue of accounting for proven acts of primary (i.e., direct) infringement in determining damages for indirect infringement. Lucent Technologies, Inc. v. Gateway, Inc. *held that the extent of directly infringing use of the patent should be viewed as one of many pieces of evidence for measuring the extent of damages ("the evidentiary approach"). In contrast,* Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc. *endorsed a rule that enables trial judges to limit damages as a matter of law to proven, enumerated acts of direct infringement of the asserted patents ("the atomistic approach").*

The conflict between the two approaches raises fundamental, unanswered questions concerning the relationship between patent infringement and ordinary torts. This Article fills a gap in the literature by identifying, and working toward unraveling, one of the puzzles of indirect infringement. Specifically, it examines what the legal fiction of formally

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imputing an act of one entity to another—an important tenet of secondary liability in tort—means for patent damages. The answer is surprising: the atomistic approach is consistent with the principles of tort law, but is at odds with well-established, general rules for determining patent damages. Conversely, the evidentiary approach seems to ignore tort law's imputation principle and embodies the pragmatic, patent-specific damages rules that the atomistic approach eschews. This Article resolves the tension in favor of the evidentiary approach and explains that considerations of policy, logic, and precedent support a damages analysis that reflects fundamental differences between patent law and tort law.

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I. INTRODUCTION

Secondary liability in various areas of law, sometimes also called "indirect liability,"[1] entails holding a party liable for the wrongdoing of another, "primary" actor—the person who actually performed the offending act.[2] One familiar example of such liability is vicarious liability, which is derived from a special relationship (e.g., agent-principal or

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1. *See* Doug Lichtman & Eric Posner, *Holding Internet Service Providers Accountable*, 14 SUP. CT. ECON. REV. 221, 228 & n.18 (2006) (discussing various terms used to describe third-party liability).

2. *See* Joachim Dietrich, *Accessorial Liability in the Law of Torts*, 31 LEGAL STUD. 231, 231 (2011) (explaining that "accessorial liability is the mechanism by which the law holds a third party (the accessory, A) responsible for 'legal injury', often damage, suffered by P as a result of a principal wrongdoer's wrong, such that A is liable for the legal injury done to P" and noting that "[a]ccessorial liability is sometimes described as *'secondary liability', meaning that liability is dependent on another's primary liability*") (emphasis added). Dietrich goes on to point out an important terminological distinction:

> The term 'secondary liability' is not appropriate for all cases of accessorial liability, however. Some examples of true accessorial liability have themselves developed into discrete wrongs, such as most examples in which the tort of conspiracy is alleged . . . and *perhaps* the tort of inducing breach of contract.

Id.

I use the phrase "independent tort" to denominate "assessorial liability" that is not a form of secondary liability. *See, e.g.*, *infra* text accompanying note 305. *See generally* Mark P. McKenna, *Probabilistic Knowledge of Third-Party Trademark Infringement*, 2011 STAN. TECH. L. REV. 10 (discussing the difference between secondary liability for another party's acts and liability for one's own negligence that caused or permitted the tortious conduct of another party).

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employee-employer) between the primary actor and the entity on which such liability is imposed.[3] In contrast, certain affirmative acts that aid and abet, encourage, induce, or otherwise facilitate the commission of a tort by the primary actor provide another, distinct basis for secondary liability.[4] Whatever the basis, the law treats the indirectly liable party as if it were the person who committed the wrongdoing, subject to the same penalties as the primary actor, or "principal"; some courts and commentators explain that the acts of the principal are treated as "imputed" to the aider-and-abettor.[5] Criminal law, for example, may punish an aider-and-abettor to the same degree as the principal.[6] Likewise, tort law impliedly relies on the imputation principle when it treats the secondary actor as jointly and severally liable to the plaintiff along with the primary actor.[7]

The law of patent infringement, a cause of action that is often described as a species of a property tort,[8] incorporates indirect liability provisions.

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3. *See* KENNETH S. ABRAHAM, THE FORMS AND FUNCTIONS OF TORT LAW 181–82 (2d ed. 2002) (explaining that, under the doctrine of *respondeat superior*, "employers are vicariously liable even absent their own negligence, for torts committed by their employees 'within the scope of employment'").

4. *See, e.g.*, Bigio v. Coca-Cola Co., 675 F.3d 163, 171–72 (2d Cir. 2012) ("'One who aids, abets, or incites, or encourages or directs, by conduct or words, . . . the perpetration of a trespass is liable equally with actual trespassers.'") (quoting Walls v. Moreland Altobelli Assocs., Inc., 659 S.E.2d 418, 421 (Ga. Ct. App. 2008)); Halberstam v. Welch, 705 F.2d 472, 483 (D.C. Cir. 1983) ("To establish a claim against the wife [for civil assault carried out by the husband], the plaintiff would have had to present 'evidence that she assisted, supported, or supplemented her husband's action or that she instigated, advised, or encouraged the commission of the tort.'") (quoting Duke v. Feldman, 226 A.2d 345, 348 (Md. 1967)).

5. *See* Hazel Carty, *Joint Tortfeasance and Assistance Liability*, 19 LEGAL STUD. 489, 491 (1999) ("Where there is the necessary participation the law will . . . 'impute' the commission of the same wrongful act to two or more persons at once. The key issue is how close these participation links come to rendering facilitators or assisters liable.") (footnote omitted).

6. *See, e.g.*, 18 U.S.C. § 2(a) (2006) ("Whoever commits an offense against the United States or aids, abets, counsels, commands, induces or procures its commission, *is punishable as a principal*.") (emphasis added).

7. *See, e.g.*, Benton v. Merrill Lynch & Co., 524 F.3d 866, 871 (8th Cir. 2008) ("[A] party who aids or abets the commission of a tort is 'jointly and severally liable therefor' . . . .") (quoting Hinton v. Bryant, 367 S.W.2d 442, 444 (Ark. 1963)); Thomson-Houston Elec. Co. v. Ohio Brass Co., 80 F. 712, 721 (6th Cir. 1897) ("From the earliest times, all who take part in a trespass, either by actual participation therein or by aiding and abetting it, have been held to be jointly and severally liable for the injury inflicted.").

8. *See, e.g.*, Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27, 33 (1931) ("Infringement, whether direct or contributory, is essentially a tort, and implies invasion of some right of the patentee."); Dowagiac Mfg. Co. v. Minn. Moline Plow Co., 235 U.S. 641, 648 (1915) ("[T]he exclusive right conferred by the patent was property and the infringement was a tortious taking of a part of that property . . . ."); *see also Thomson-Houston*, 80 F. at 721 ("An infringement of a patent is a tort analogous to trespass or trespass on the case.").

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Similar to other areas of law that prescribe such liability,[9] the Patent Act holds indirectly liable those who cause others to infringe or aid in the commission of directly infringing acts.[10] As with secondarily liable parties in other areas of tort law, indirect infringers are jointly and severally liable with direct infringers[11] to the patent owner.[12] Nevertheless, when it comes to calculating damages for indirect patent infringement, applying the imputation principle can—surprisingly—lead to erroneous results. I argue in this Article that the imputation principle can cause problems when combined with the most established approach for calculating damages in patent law—the so-called "hypothetical negotiation" approach.

There are reasons to be cautious before drawing direct analogies between patent law and tort law. Although common-law principles often motivate the analysis of secondary liability for intellectual property torts,[13] there are many important differences between general secondary civil liability and indirect patent infringement. For example, claims of indirect

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9. *See* Nat'l Presto Indus., Inc. v. W. Bend Co., 76 F.3d 1185, 1194 (Fed. Cir. 1996) ("The statutory liability for inducement of infringement derives from the common law, wherein acts that the actor knows will lead to the commission of a wrong by another, place shared liability for the wrong on the actor."); Charles W. Adams, *Indirect Infringement from a Tort Law Perspective*, 42 U. RICH. L. REV. 635, 685 (2008) ("[T]he law of indirect infringement conforms to general tort law for the most part.").

10. *See* 35 U.S.C. § 271(b) (2006) ("Whoever actively induces infringement of a patent shall be liable as an infringer."); § 271(c) (establishing the basis for liability as "a contributory infringer"). It is worth noting that, according to the Restatement (Second) of Torts, there is a difference between aiding-and-abetting and inducement. *See* Adams, *supra* note 9, at 639–43 (explaining that section 876(b) of the Restatement provides the basis for "aiding and abetting" liability for "substantial assistance" to the primary tortfeasor, while section 877(a) imposes "inducement" liability on one who "orders or induces" tortious conduct). Nevertheless, the courts generally use the terms "aid-and-abet" and "induce" interchangeably to refer to acts giving rise to liability under § 271(b). *See, e.g.*, Tegal Corp. v. Tokyo Electron Co., 248 F.3d 1376, 1379 (Fed. Cir. 2001) ("'[T]he term [inducement] is as broad as the range of actions by which one in fact causes, or urges, or encourages, or aids another to infringe a patent.'") (quoting Fromberg, Inc. v. Thornhill, 315 F.2d 407, 411 (5th Cir. 1963)); Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1306 (Fed. Cir. 1999) ("Inducement requires proof that the accused infringer knowingly aided and abetted another's direct infringement of the patent.").

11. Section 271(a) provides the basis for direct infringement liability.

12. *See* Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 500 (1964) (describing a contributory infringer's relationship to a direct infringer as that of a "joint-tortfeasor"); Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469 (Fed. Cir. 1990) (explaining "joint tortfeasance" theory of inducement of infringement); *Thomson-Houston*, 80 F. at 721. *See also* Timothy R. Holbrook, *The Intent Element of Induced Infringement*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 399, 400 (2006) ("Liability for active inducement of infringement and contributory infringement are variations of third-party liability, where one party is held liable for the directly infringing acts of others. The justifications for these rules are the same as those used to rationalize joint and several liability elsewhere in tort law . . . .").

13. *See, e.g.*, Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913, 930–31, 934–35 (2005) (establishing inducement liability for copyright infringement); *see also supra* text accompanying notes 9–10.

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infringement in patent law, and in intellectual property law in general,[14] are asserted much more frequently and command a significantly greater degree of attention than analogous claims in general tort law.[15] In the well-known case of *Halberstam v. Welch*, Judge Patricia Wald described secondary civil liability tongue-in-cheek as an area of law where "[p]recedent, except in the securities area, is largely confined to isolated acts of adolescents in rural society."[16] Although this area of law has surely grown in stature since *Halberstam* was decided,[17] there is no doubt that in intellectual property law, including patent law, secondary liability is of relatively greater significance than in general tort law. Some of the most important patent, copyright, and trademark cases of recent years have been predicated on theories of indirect infringement.[18] In the area of patents, commentators and courts agree that indirect infringement causes of action often provide the patentee with the only effective form of legal recourse and are normatively justified: "[t]he goal of secondary liability is to give patent owners effective protection in circumstances in which the actual infringer either is not the truly responsible party or is impractical to sue."[19]

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14. *See, e.g.*, Charles W. Adams, *A Brief History of Indirect Liability for Patent Infringement*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 369, 398 (2006) ("[T]he doctrines of contributory infringement and inducement of infringement are stronger than ever, having been extended by the Supreme Court to cover copyright infringement through the use of VCR's and file sharing on the Internet."); Mark Bartholomew, *Copyright, Trademark and Secondary Liability After* Grokster, 32 COLUM. J.L. & ARTS 445 (2009) (discussing novel issues pertaining to secondary liability in trademark and copyright law).

15. *See* Mark Bartholomew & John Tehranian, *The Secret Life of Legal Doctrine: The Divergent Evolution of Secondary Liability in Trademark and Copyright Law*, 21 BERKELEY TECH. L.J. 1363, 1364 (2006) ("As intellectual property owners have increasingly turned to secondary liability theories, the courts have responded by enunciating substantial reinterpretations of extant principles, thereby precipitating a veritable secondary liability revolution."). Of course, this phenomenon could be due in part to the challenges in applying tort law principles to new technologies.

16. 705 F.2d 472, 489 (D.C. Cir. 1983).

17. *See generally* Eugene J. Schiltz, *Civil Liability for Aiding and Abetting: Should Lawyers Be "Privileged" To Assist Their Clients' Wrongdoing?*, 29 PACE L. REV. 75, 76–85 (2008) (discussing the "flood of civil aiding and abetting cases in the last quarter century").

18. Global-Tech Appliances, Inc. v. SEB S.A., 131 S. Ct. 2060 (2011) (inducement liability for patent infringement); *Grokster*, 545 U.S. 913 (inducement liability for copyright infringement); Tiffany (NJ) Inc. v. eBay Inc., 600 F.3d 93 (2d Cir. 2010) (contributory trademark infringement); *see also* McKenna, *supra* note 2 (discussing indirect trademark infringement); Alfred C. Yen, *Torts and the Construction of Inducement and Contributory Liability in* Amazon *and* Visa, 32 COLUM. J.L. & ARTS 513 (2009) (discussing indirect copyright infringement cases following *Grokster*).

19. Mark A. Lemley, *Inducing Patent Infringement*, 39 U.C. DAVIS L. REV. 225, 228 (2005). *See* Holbrook, *supra* note 12, at 400–01 ("[T]he indirect infringer may be more morally culpable than the direct infringers. Indeed, the inducers may be considerably more culpable in the patent infringement context because direct infringement is a strict liability offense.") (footnotes omitted); *see also* Dawson Chem. Co. v. Rohm & Haas Co., 448 U.S. 176, 221 (1980) ("[T]he policy of stimulating invention that underlies the entire patent system runs . . . deep. And the doctrine of contributory infringement, which has been called 'an expression both of law and morals,' can be of crucial importance in ensuring that

The fact that circumstances encountered in indirect patent infringement cases can differ quite dramatically from those in secondary liability cases in general tort law underscores this point. In tort law, aiding-and-abetting and inducement cases often involve encouragement or assistance to a specific individual who then goes on to commit an intentional tort.[20] In contrast, a typical scenario in an inducement of patent infringement case occurs when a manufacturer sells a product that includes patented technology and comes with instructions or other tools that direct end users to employ it in such a way as to infringe the patent directly (think of familiar items like Microsoft Word, Microsoft Outlook, and Rubik's Cube).[21] The end users generally have no idea that a patent on the technology exists, let alone that they are infringing it,[22] and are almost

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the endeavors and investments of the inventor do not go unrewarded.") (quoting Mercoid Corp. v. Mid-Continent Inv. Co., 320 U.S. 661, 677 (1944) (Frankfurter, J., dissenting)); Ricoh Co. v. Quanta Computer Inc., 550 F.3d 1325, 1338 (Fed. Cir. 2008) (noting that "because 'it may be impossible to enforce rights in the protected work effectively against all direct infringers, the only practical alternative [is] to go against the distributor of the copying device for secondary liability.'") (quoting *Grokster*, 545 U.S. at 929–30); Jacob S. Sherkow, *Patent Infringement as Criminal Conduct*, 19 MICH. TELECOMM. & TECH. L. REV. 1, 26 (2012) ("[W]ithout inducement, the patent holder 'is left with the potentially enormous burden of proceeding against the numerous direct infringers who purchased the copied product.'") (quoting Mixing Equip. Co. v. Innova-Tech, Inc., No. 85-535, 1986 WL 14541, at *3 (E.D. Pa. Dec. 19, 1986)).

20. *See, e.g.*, Halberstam v. Welch, 705 F.2d 472 (D.C. Cir. 1983) (defendant is liable for wrongful death for aiding and abetting a murderer). Of course, there are many examples of indirect liability where the primary act is not violent. *See* Schiltz, *supra* note 17, at 76 (documenting expansion of secondary liability for assisting fraud, breach of fiduciary duty, and the like); *see also* Bigio v. Coca-Cola Co., 675 F.3d 163, 171–72 (2d Cir. 2012) (discussing basis for civil liability for aiding and abetting trespass).

21. *See, e.g.*, i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 850–52 (Fed. Cir. 2010), *aff'd*, 131 S. Ct. 2238 (2011) (liability for inducement of infringement where online materials provided detailed instructions for using a software feature in an infringing manner and the defendant's internal emails suggested that it knew of the patent and of the infringing nature of the software); Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1326–27 (Fed. Cir. 2009) (similar); Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1272 (Fed. Cir. 1986) ("circumstantial evidence of extensive puzzle sales, dissemination of an instruction sheet teaching the [claimed] method of restoring the preselected pattern with each puzzle, and the availability of a solution booklet" were sufficient to impose inducement liability on the manufacturer of Rubik's Cube where end users directly infringed the claimed method by solving the puzzle); *see also Global-Tech*, 131 S. Ct. at 2068–71 (clarifying the requisite level of knowledge of patent for inducement liability to attach).

22. This is because direct infringement under 35 U.S.C. § 271(a) is a strict liability offense. *See, e.g.*, *In re* Seagate Tech., LLC, 497 F.3d 1360, 1368 (Fed. Cir. 2007) (en banc). *See generally* Roger D. Blair & Thomas F. Cotter, *Strict Liability and Its Alternatives in Patent Law*, 17 BERKELEY TECH. L.J. 799 (2002) (exploring in what sense patent infringement is a strict liability tort). There is a small nuance in the strict liability rule: If the *patent owner or licensee* is manufacturing a product covered by a patent, then 35 U.S.C. § 287(a) essentially requires notice to potential infringers by prohibiting recovery of damages during the period when no notice was given. This requirement can be met either by actual notice or by the "marking" of the patented product with the word "pat." or "patent" and the patent number. But the marking statute does not apply when the patent owner is not manufacturing a product. *See* Wine Ry. Appliance Co. v. Enter. Ry. Equip. Co., 297 U.S. 387, 398 (1936). Moreover,

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never themselves sued by the patent owner.[23] In *Lucent Technologies, Inc. v. Gateway, Inc.*,[24] an important case that I will discuss extensively in this Article, computer users were found to directly infringe the plaintiff's asserted patent,[25] therefore opening the door for the defendants' inducement of infringement liability.[26] The infringing acts constituted selecting appointment dates and times by clicking on Microsoft Outlook's calendar display.[27] Most readers who have used this so-called "date-picker"[28] feature of the Outlook calendar would be very surprised if they were served with a patent infringement complaint.

Given the factual differences and the heightened importance of secondary liability in intellectual property law, the courts sometimes pause before relying too heavily on the formalisms of tort law in indirect patent infringement cases. The sense that the inducer who provides the enabling technology is the real tortfeasor, while the primary actor is something of a passive instrumentality,[29] may explain some seemingly anomalous results

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§ 287(a) does not apply at all to method (sometimes called "process") claims, which are typically asserted in inducement of infringement cases. *See* Crown Packaging Tech., Inc. v. Rexam Beverage Can Co., 559 F.3d 1308, 1316 (Fed. Cir. 2009); *see also infra* text accompanying notes 52–53 (explaining what method claims are and why their assertion often requires indirect liability theories). Thus, end users would normally have no notice that they are infringing such claims unless they are actually sued for direct infringement.

23. Roger D. Blair & Thomas F. Cotter, *An Economic Analysis of Seller and User Liability in Intellectual Property Law*, 68 U. CIN. L. REV. 1, 3 (1999) ("The good news for unwitting consumers is that the patent rule [imposing liability on end users] is, as far as we can tell, almost never enforced against private, noncommercial users of inventions, which perhaps explains why so few people are aware that the consumer . . . is, technically, an infringer."). *Commercial* end users do get sued, however. *See, e.g.*, Joe Mullin, *Patent trolls want $1,000—for using scanners*, ARSTECHNICA (Jan. 2, 2013, 8:30 AM), http://arstechnica.com/tech-policy/2013/01/patent-trolls-want-1000-for-using-scanners; *see also* Colleen V. Chien & Edward Reines, *Why Technology Customers Are Being Sued En Masse for Patent Infringement and What Can Be Done*, 49 WAKE FOREST L. REV. 235 (2014) (documenting direct infringement lawsuits against commercial end users like hospitals and small companies).

24. 580 F.3d 1301 (Fed. Cir. 2009).

25. *Id.* at 1317–20.

26. *Id.* at 1323; *see infra* Part II.A for a discussion of the direct infringement element of indirect infringement liability.

27. *See Lucent*, 580 F.3d at 1310–11; U.S. Patent No. 4,763,356 (filed Dec. 11, 1986) (issued Aug. 9, 1988), claims 19 & 21.

28. *Lucent*, 580 F.3d at 1317.

29. Of course, the steps taken to infringe the claims, like solving the Rubik's Cube, are acts driven by independent human will. The point is that, in sharp contrast to primary tortfeasors in other civil inducement cases, direct patent infringers generally have no idea that they are engaged in tortious conduct, and are unlikely to get sued. Furthermore, if not for the fact that direct infringement is a strict liability tort, direct infringers in this context would resemble criminal law's "innocent instrumentalities." Under the innocent instrumentality doctrine, a party that uses an unknowing agent to perpetrate a crime is *directly* liable for the crime, while the agent is not liable at all. *See, e.g.*, Bailey v. Commonwealth, 329 S.E.2d 37, 40 (Va. 1985) ("[O]ne who effects a criminal act through an innocent or unwitting agent is a principal in the first degree."). *Cf.* 18 U.S.C. § 2(b) (2006); *see* United

in the arena of secondary liability for intellectual property torts.[30] For example, in *Akamai Technologies, Inc. v. Limelight Networks, Inc.*, the en banc Court of Appeals for the Federal Circuit (Federal Circuit) refused to impose direct "joint-tortfeasor" liability when multiple entities together carry out all the steps of a patented method.[31] The Federal Circuit held that "extending liability in that manner would ensnare actors who did not themselves commit all the acts necessary to constitute infringement and who had no way of knowing that others were acting in a way that rendered their collective conduct infringing."[32] But the court also ruled that a party that induces the performance of all of the steps by a combination of entities can be liable for indirect infringement under these circumstances.[33] This was a surprising result because it allowed for secondary liability when no party could be held liable as a primary infringer.[34]

Although several scholars have examined the ways in which tort law principles inform secondary liability in intellectual property law,[35] the issue of damages for such liability remains undertheorized.[36] Specifically,

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States v. Rapoport, 545 F.2d 802, 806 (2d Cir. 1976) (interpreting section 2(b) to impose liability on "one who puts in motion or assists in the illegal enterprise or causes the commission of an indispensable element of the offense by an innocent agent or instrumentality") (citation omitted). I thank Professor Youngjae Lee for suggesting that I make this point.

30. *Cf.* McKenna, *supra* note 2 (analyzing indirect trademark infringement in terms of traditional tort principles but lamenting that the courts frequently depart from these principles).

31. Akamai Techs., Inc. v. Limelight Networks, Inc., 692 F.3d 1301, 1307 (Fed. Cir. 2012) (en banc) (per curiam), *rev'd on other grounds*, 134 S. Ct. 2111 (2014). *See infra* note 52 for an explanation of method claims.

32. *Akamai*, 692 F.3d at 1307.

33. *Id.* at 1309. The Supreme Court reversed this holding as this Article went to press. *See* Limelight Networks, Inc. v. Akamai Techs., Inc., 134 S. Ct. 2111, 2014 WL 2440535, at *4–5 (2014).

34. *See* Rochelle C. Dreyfuss, *Percolation, Uniformity, and Coherent Adjudication: The Federal Circuit Experience*, 66 SMU L. REV. 505, 529 (2013) ("[A]ccording to . . . commentators, the court [in *Akamai*] largely misconceived the [joint-tortfeasor] doctrine.") (citing Lynda J. Oswald, *Unexpected Hazards of a Specialized Patent Court: Lessons from Joint Infringement Doctrine*, *in* THE CHANGING FACE OF U.S. PATENT LAW AND ITS IMPACT ON BUSINESS STRATEGY 131 (Daniel R. Cahoy & Lynda J. Oswald eds., 2013)) (other citation omitted); Timothy R. Holbrook, *The Potential Extraterritorial Consequences of* Akamai, 26 EMORY INT'L L. REV. 499, 513 (2012) ("The Federal Circuit took a unique step in *Akamai* by redefining active inducement of patent infringement."); Josh Rychlinski, Note, *Interactive Methods and Collaborative Performance: A New Future for Indirect Infringement*, 20 MICH. TELECOMM. & TECH. L. REV. 215, 241 (2013) ("*Akamai* has announced a new standard for indirect infringement, but has disturbed almost all of the modern era indirect infringement doctrine . . . by removing the direct infringement prerequisite."). *See generally* Brendyn M. Reinecke, Note, Akamai*: Patent Claims Are Now Broader than the Invention*, 2013 WIS. L. REV. 1231 (criticizing *Akamai*).

35. *See, e.g.*, Adams, *supra* note 9; Mark Bartholomew & Patrick F. McArdle, *Causing Infringement*, 64 VAND. L. REV. 675 (2011); Holbrook, *supra* note 12; McKenna, *supra* note 2; Yen, *supra* note 18.

36. The problems associated with proving reasonable royalty damages for inducement of infringement are flagged in a recent article by Andrew Ward. *See* Andrew Ward, *Inducing*

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the principle of formally imputing the wrongdoings of primary tortfeasors to the indirect infringer[37] has confounded the courts' management of patent damages.[38] According to that principle, the plaintiff should recover from the indirect infringer the sum total of the damages that it would have recovered from all direct infringers, had they all been sued instead of the indirect infringer.[39] Taken to a logical extreme, the imputation formalism would require calculating damages that each direct infringer who was induced by the indirect infringer (for example, each customer who used the date-picker feature of Outlook) would owe the patent owner, and then summing them up to calculate the damages owed by the indirect infringer. In general tort law, this approach makes intuitive sense: if an inducer trained one thief to steal a plaintiff's wallet and another thief to steal that plaintiff's watch, the plaintiff suing the inducer on the theory of secondary liability for conversion would seek damages for precisely the sum total of two items stolen by the two different thieves.[40]

Something seems odd about the individualized approach in patent cases, however. The relatively large numbers of direct infringers involved in the Outlook case and many other indirect patent infringement actions[41] make particularized damages determinations for each consumer unmanageable, and maybe even unimaginable. Generally, a large, undifferentiated mass of direct infringers is a distinctive feature of

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Infringement: Specific Intent and Damages Calculation, 94 J. PAT. & TRADEMARK OFF. SOC'Y 1, 26–29 (2012). Mr. Ward's article discusses *Lucent* but does not address the inducement damages holding in *Cardiac Pacemakers*, which is in significant tension with *Lucent* and adopts an approach that I generally criticize here. *See infra* Part IV.B.3; *see also* Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1359 (Fed. Cir. 2009).

37. *See supra* text accompanying notes 5–12; *see also* BLACK'S LAW DICTIONARY 933 (8th ed. 2004) (defining secondary liability as "[l]iability that does not arise unless the primarily liable party fails to honor its obligation").

38. If recent cases are any indication, judicial management of patent damages can make a difference to the tune of tens and potentially hundreds of millions of dollars. *See, e.g.*, Lucent Techs., Inc. v. Microsoft Corp., 837 F. Supp. 2d 1107, 1126–27 (S.D. Cal. 2011), *on remand from* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301 (Fed. Cir. 2009) (initial damages award an in indirect infringement case reduced from $357,693,056.18 to $70,000,000 after a new trial, and further reduced to $26,300,000 on remittitur).

39. *See, e.g.*, Glenayre Elecs., Inc. v. Jackson, 443 F.3d 851, 858–59 (Fed. Cir. 2006) ("[D]amages assessed for indirect infringement normally will be the same as damages that would be assessed had the patentee sued and obtained a judgment against the customers. . . . Indeed, in most cases damages assessed for indirect infringement will be equal to damages assessed for the underlying direct infringement.") (citations omitted).

40. I owe inspiration for this example to Professors Charles Adams and William Von Glahn. *See Amici Curiae* Brief of Charles W. Adams and William Von Glahn in Support of Petitioner at 3, Stoneridge Inv. Partners, LLC v. Scientific Atlanta, Inc., 552 U.S. 148 (2008) (No. 06-43), 2007 WL 1701932, at *3.

41. *See supra* text accompanying note 21.

intellectual property cases involving claims of indirect liability,[42] which by itself makes the tort analogy suspect.[43] As I will aim to show in this Article, however, more is at stake than mere numbers. Indeed, one of my goals is to provide a general account of how and why damages for indirect patent infringement differ from damages for secondary liability in other areas of tort law.

To be sure, I have not come across a case where the principle of imputation was taken to the formalistic extreme of calculating indirect infringement damages by adding up the damages occasioned by each individual end user. Some courts, however, take a step in that direction. In an approach I call the atomistic approach, they have limited damages that can be collected for indirect infringement to proven acts of direct infringement.[44] A contrasting approach, which I call the evidentiary approach, relies on the extent of directly infringing use as one of the factors that aids in the calculation of damages for indirect infringement.[45] I argue in this Article that the atomistic approach is fully justified by general tort law principles but is a bad fit for patent law, which is better served by the evidentiary approach.

Let me make clear that I have nothing against judicial management of patent damages in general. Motions to limit damages as a matter of law, or to restrict methods of calculating damages available to the plaintiff[46]—

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42. Claims involving the pattern "one indirectly liable party/many directly liable parties" do occur in other areas of tort law. Attempts to hold firearm manufacturers civilly liable for injuries caused with the aid of the weapons they provided constitute one example. *See, e.g.*, Shane Wagman, Note, *No One Ever Died From Copyright Infringement: The Inducement Doctrine's Applicability to Firearms Manufacturer Liability*, 32 CARDOZO L. REV. 689, 689 (2010) (exploring the contours of such claims after noting that "[b]ringing successful lawsuits against firearms manufacturers for harms to gun violence victims caused by a third party's criminal gun use has been a near-impossible task") (footnote omitted); *see also infra* text accompanying note 96.

43. In copyright law, the *Grokster* and *Napster* cases, where large numbers of end users engaged in directly infringing sharing of MP3s and other types of files, come to mind. *See* Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913 (2005); A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2001); *see also infra* note 89 and accompanying text for a further exploration of the breakdown of the analogy between general secondary liability in tort and secondary liability in intellectual property law.

44. *See, e.g.*, Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1359 (Fed. Cir. 2009) (upholding the grant of summary judgment limiting indirect infringement damages to device units proven to infringe directly).

45. *See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1331 (Fed. Cir. 2009) (refusing to limit damages to proven acts of direct infringement).

46. *See* WILLIAM C. ROOKLIDGE ET AL., COMPENSATORY DAMAGES ISSUES IN PATENT INFRINGEMENT CASES: A POCKET GUIDE FOR FEDERAL DISTRICT COURT JUDGES 22–26 (2011) *available at* http://www.fjc.gov/public/pdf.nsf/lookup/damagespatent.pdf/$file/damagespatent.pdf (cataloguing damages issues amenable to summary disposition under Federal Circuit law); *see also infra* Part V.A.3.

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even before the determination of liability—are often proper, and properly granted.[47] I explain, however, that grants of motions to limit damages for indirect infringement to proven instances of direct infringement are often highly problematic. Patent law approaches damages calculations in ways that are quite different from general tort law, and a lot can go wrong if the courts hew too closely to general tort principles and tie indirect infringement damages to directly infringing conduct in a formal manner. Indeed, basing such damages on proven acts of direct infringement, all while holding fast to traditional principles for calculating "reasonable royalty"[48] damages for patent infringement, may be logically incoherent. Something has to give. I aim to demonstrate that, given the choice between rigid adherence to tort law principles and continued reliance on the approach specifically developed for calculating patent damages, the latter is preferable.

The rest of this Article proceeds as follows. In Part II, I briefly discuss the requirements for establishing indirect patent infringement liability. In Part III, I review the methods for calculating patent damages with an eye toward principles that can aid in understanding the similarities and differences between the evidentiary and atomistic approaches. In Part IV, I describe and critique the two approaches. I use two representative cases, *Lucent Technologies, Inc. v. Gateway, Inc.*[49] and *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*,[50] to illustrate the contrast between them.

In Part V, I explain why, for both pragmatic and theoretical reasons, the evidentiary approach is better suited to measuring indirect patent infringement damages than the atomistic approach. On the pragmatic side, I argue that the atomistic approach is likely to create confusion and lead to error, possibly resulting in the systematic underestimation of damages in inducement of infringement cases. I then show that the atomistic approach is at odds with established rules for calculating patent infringement damages, and discuss why a grant of a motion to limit indirect infringement damages to proven instances of direct infringement as a matter of law would rarely be correct. On the theoretical side, I

47. *But see* Hoffman-La Roche Inc. v. Promega Corp., 33 U.S.P.Q.2d (BNA) 1641, 1649 (N.D. Cal. 1994) (denying as premature a motion for summary adjudication of patent damages, which was brought prior to determination of liability).

48. *See* 35 U.S.C. § 284 (2006) ("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 for the use made of the invention by the infringer*, together with interest and costs as fixed by the court.") (emphasis added).

49. 580 F.3d 1301 (Fed. Cir. 2009).

50. 576 F.3d 1348 (Fed. Cir. 2009).

demonstrate that the evidentiary approach is consistent with the intuition that the invasion of the patentee's legal right to exclude is fundamentally caused by the activities of the indirect infringer rather than by the end users. I also explain why the evidentiary approach does not impermissibly extend the scope of patents to unpatented items. In the Conclusion, I summarize my arguments why the evidentiary approach reflects sounder policy and promotes doctrinal coherence.

II. PRINCIPLES OF INDIRECT PATENT INFRINGEMENT

The Patent Act provides two sources of indirect infringement liability—inducement of infringement under § 271(b) and contributory infringement under § 271(c). The former section says that, "[w]hoever actively induces infringement of a patent shall be liable as an infringer."[51] Often, plaintiffs must rely on indirect infringement theories when they seek to enforce so-called "method claims"[52] and are unable to show that the defendant has itself carried out all of the steps of the patented method.[53] In a typical inducement scenario, a manufacturer makes and

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51. 35 U.S.C. § 271(b) (2006).

52. Briefly, method or process claims have the form "a method for . . .", followed by a recitation of *steps*. In contrast, apparatus or machine claims have the form "an apparatus for . . .", "a device comprising . . . ", and so on, followed by a recitation of *structural elements* of the claimed apparatus, machine, or device. *See* Dmitry Karshtedt, *Limits on Hard-To-Reproduce Inventions: Process Elements and Biotechnology's Compliance with the Enablement Requirement*, 3 HASTINGS SCI. & TECH. L.J. 109, 118 (2011) (illustrating method and apparatus claims). For example, in *Moleculon*, the Rubik's Cube case, one of the asserted method claims recited:

> 3. A method for restoring a preselected pattern from sets of pieces which pieces have constantly exposed and constantly nonexposed surfaces, the exposed surfaces adapted to be combined to form the preselected pattern, which sets when in random engagement fail to display said preselected pattern which comprises:
>
> a. engaging eight cube pieces as a composite cube;
>
> b. rotating a first set of cube pieces comprising four cubes about a first axis;
>
> c. rotating a second set of four cubes about a second axis; and
>
> d. repeating steps (b) and (c) until the preselected pattern is achieved.

Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1263 (Fed. Cir. 1986). If the plaintiff cannot show that the defendant, who manufactures Rubik's Cube, performed steps (a)–(d), it cannot establish direct infringement liability against the defendant under 35 U.S.C. § 271(a), and only indirect infringement theories (e.g., inducement under section 271(b)) remain. In addition, the ability to pursue the manufacturer for the infringement of its customers on indirect infringement theories increases the potential damages available to the plaintiff.

53. No such difficulty usually exists with apparatus claims, *see supra* note 52, because the sale of the apparatus embodied in the claims constitutes an act of infringement for which the manufacturer could be held directly liable under § 271(a). *See, e.g.*, Akamai Techs., Inc. v. Limelight Networks, Inc., 692 F.3d 1301, 1305–06 (Fed. Cir. 2012) (en banc) (per curiam), *rev'd*, 134 S. Ct. 2111 (2014) ("*When claims are directed to a product or apparatus, direct infringement is always present, because the entity that installs the final part and thereby completes the claimed invention is a direct infringer.*

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sells a device capable of performing the claimed method and provides instructions to use the device in a manner that, if followed, would result in infringement.[54] For example, in the Outlook date-picker case, Lucent did not demonstrate that Microsoft used its own software to infringe the claims of Lucent's patent,[55] but provided enough evidence to show that the users of Outlook did so[56] and proved other elements of inducement so as to hold Microsoft liable as an indirect infringer.[57]

Section 271(c), a more complex provision, holds liable those who sell or offer for sale in the United States (or import into the United States) components of patented inventions that "constitut[e] a material part of the invention" with the knowledge that such components are "especially made or especially adapted for use in an infringement."[58] Further, for contributory infringement liability to lie, the accused component must not be "a staple article or commodity of commerce suitable for substantial noninfringing use."[59] By its terms, this provision is not limited to sales of components of mechanical inventions. For example, one case where a plaintiff succeeded on a theory of contributory infringement involved the defendant's sale of a chemical compound that had no application but in the infringement of the method patented by the plaintiff.[60] These facts points to a key distinction between contributory infringement and inducement: a sale of a component capable of substantial noninfringing uses cannot give rise to § 271(c) liability, but § 271(b) liability would still be possible if the accused indirect infringer's conduct and state of mind have risen to the level of inducement.[61] The focus of this Article is on inducement of infringement. In inducement cases, liability can lie when a product can be

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But in the case of method patents, parties that jointly practice a patented invention can often arrange to share performance of the claimed steps between them.") (emphasis added). While *Akamai* addressed the special problem of "divided infringement"—i.e., splitting of steps of a method claim between different entities—in a run-of-the-mill inducement case against a manufacturer, a single end user carries out all the steps of the claimed method and could thus, in theory, be held liable for direct infringement.

54. "Device" is not limited to tangible devices like Rubik's Cube. As we have already seen, the "device" in question can be software capable of performing the claimed method. *See supra* text accompanying note 21.

55. *See supra* text accompanying note 27.

56. Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1317–19 (Fed. Cir. 2009); *see also infra* Part II.A (discussing the direct infringement element of indirect liability).

57. *Lucent*, 580 F.3d at 1321–23. Microsoft was also held liable on the alternative theory of contributory infringement. *Id.* at 1320–21.

58. 35 U.S.C. § 271(c) (2006).

59. *Id.*

60. *See* Dawson Chem. Co. v. Rohm & Haas Co., 448 U.S. 176 (1980).

61. *See infra* Parts II.B & II.C (discussing the intent and act elements of inducement of infringement).

(and often is) used in a noninfringing manner.[62] This interesting circumstance tests, and sometimes strains, the connection between direct and indirect infringement in the analysis of damages.

Generally, the elements required to establish secondary liability in tort are "(1) the existence of an underlying tort; (2) the defendant's knowledge of the underlying tort; and (3) that the defendant provided substantial assistance to advance the underlying tort's commission."[63] So it is in patent law, which requires proof of underlying direct infringement, knowledge of the direct infringement,[64] and acts of inducing or aiding infringement.[65] Focusing on inducement of infringement, I will next consider each element of indirect patent infringement in turn.

A. The Direct Infringement Element

Some of the confusion over indirect infringement damages stems from the role that proven acts of direct infringement play in establishing liability in indirect infringement cases. Consonant with other areas of law governing secondary liability, one of the elements needed to establish indirect patent infringement is primary liability—in other words, direct infringement.[66] The courts agree that, in order to prove indirect infringement, the showing of primary infringement need only be de

62. One of the best-known cases presenting facts that gave rise to inducement liability but not contributory infringement liability is actually a copyright case, which incidentally affirmed that indirect infringement theories in copyright law can be pursued on bases similar to those provided in §§ 271(b) and 271(c) of the Patent Act. *See* Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913, 937 (2005) (holding that, even though substantial noninfringing uses for a peer-to-peer file sharing service exist, the service's owner is indirectly liable for copyright infringement under the "inducement rule," which "premises liability on purposeful, culpable expression and conduct"); *see also id.* at 940 n.13 ("[T]he culpable act is not merely the encouragement of infringement but also the distribution of the tool intended for infringing use.").

63. Bigio v. Coca-Cola Co., 675 F.3d 163, 172 (2d Cir. 2012) (alterations and citations omitted) (stating the elements of civil aiding-and-abetting liability under New York common law).

64. *See* 35 U.S.C. § 271(c) (2006) (mandating proof of the element of "knowing" that a component is "especially made or especially adapted for use in an infringement of a patent" to establish contributory infringement). In inducement cases, willful blindness to the fact that the directly infringing conduct constitutes patent infringement is sufficient. *See* Global-Tech Appliances, Inc. v. SEB S.A., 131 S. Ct. 2060, 2068–71 (2011); *infra* text accompanying notes 73–74.

65. The following formulation, provided in a jury instruction approved in *DSU Medical Corp. v. JMS Co.*, is typical: "In order to induce infringement, there must first be an act of direct infringement and proof that the defendant knowingly induced infringement with the intent to encourage the infringement. The defendant must have intended to cause the acts that constitute the direct infringement and must have known or should have known than [sic] its action would cause the direct infringement." 471 F.3d 1293, 1305 (Fed. Cir. 2006) (en banc in relevant part).

66. *See supra* text accompanying notes 63–65.

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minimis.[67] One Federal Circuit opinion stated, simply, that "inducement [of infringement] requires a *threshold finding* of direct infringement,"[68] and one trial judge characterized "evidence of direct infringement" as a "*technical hurdle* to establishing indirect infringement."[69]

The relationship between proven acts of direct infringement and *damages* for indirect infringement can be more complex. When analyzing damages, the courts in some cases have complicated the normally straightforward treatment of direct infringement as a minimal, threshold requirement for indirect liability. Some opinions conflate the distinction between liability and damages. Before reaching the question of damages, these cases appear to treat indirect liability as something like a series of discrete instances of indirect infringement that map onto specific directly infringing acts.[70] I believe that this formalistic application of the imputation principle to indirect infringement damages often leads to error and constitutes bad policy.[71]

B. The Intent Element

The principal difference between proving direct, as opposed to indirect, infringement is that the former is a strict liability tort,[72] while both secondary infringement theories require a culpable state of mind. The level of mens rea required for inducement liability had been a subject of vigorous debate among courts and commentators,[73] which the Supreme

67. To be sure, the requirement is far from an empty one—litigants in some cases failed to make even the de minimis showing of direct infringement. *See, e.g.*, Mirror Worlds, LLC v. Apple Inc., 692 F.3d 1351, 1359 (Fed. Cir. 2012); ACCO Brands, Inc. v. ABA Locks Mfr. Co., 501 F.3d 1307, 1313 (Fed. Cir. 2007); Dynacore Holdings Corp. v. U.S. Philips Corp., 363 F.3d 1263, 1277 (Fed. Cir. 2004).

68. Exergen Corp. v. Wal-Mart Stores, Inc., 575 F.3d 1312, 1321 (Fed. Cir. 2009) (emphasis added).

69. Rambus Inc. v. Hynix Semiconductor Inc., 642 F. Supp. 2d 970, 989 (N.D. Cal. 2008) (Whyte, J.) (emphasis added).

70. *See supra* text accompanying notes 37–44 (calling this the "atomistic" approach); *see also infra* Part IV.B (further explaining the atomistic approach).

71. *See infra* Part V.

72. *See supra* text accompanying note 22.

73. According to a Westlaw keycite search, the two leading Federal Circuit cases that seemed to require different mental states for inducement, *Manville Sales Corp. v. Paramount Systems, Inc.*, and *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, have been cited in 179 and 119 law review articles, respectively, as of the time of this writing. 917 F.2d 544 (Fed. Cir. 1990); 909 F.2d 1464 (Fed. Cir. 1990). (Note, however, that *Manville* was also significant in the law of the § 102(b) on-sale bar.) In 2006, the issue was addressed by the en banc Federal Circuit in *DSU Medical Corp. v. JMS Co.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) (en banc in relevant part). The Supreme Court finally made a definitive pronouncement on the requisite mens rea for a finding of inducement in *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S. Ct. 2060, 2068 (2011).

Court settled by holding that an inducer's knowledge of, or willful blindness to, the fact that end users are infringing the patent is required for liability.[74] In addition, "[t]he defendant must have intended to cause the acts that constitute the direct infringement."[75] Rightly or wrongly,[76] this formulation appears to be consistent with that of general tort law. At least in some jurisdictions, elements of secondary liability in tort at common law include "knowledge that the primary wrongdoer owed the plaintiff a duty" and a showing that "the defendant acted to procure a breach of the primary wrongdoer's duty to the plaintiff."[77]

C. The Act Element

The plaintiff must also prove some affirmative conduct on the part of the accused infringer to meet the actus reus element of indirect infringement.[78] For contributory infringement under § 271(c), the statute contemplates the acts of "offer to sell," "sale," and "import."[79] For § 271(b), the courts have made it clear that the "actively induces" language of the statute requires affirmative acts on the part of the indirect infringer, such as providing instructions "which, if followed, would result in infringement."[80] There is no such thing as "passive" inducement.[81]

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74. *See Global-Tech*, 131 S. Ct. at 2068–71.

75. *DSU*, 471 F.3d at 1305.

76. For a sampling of recent articles criticizing the standard adopted by the Supreme Court, see Soonbok Lee, Note, *Induced Infringement as a Strict Liability Claim: Abolishment of the Specific Intent Requirement*, 4 HASTINGS SCI. & TECH. L.J. 381 (2012) (arguing that inducement claims should be strict liability); Jason A. Rantanen, *An Objective View of Fault in Patent Infringement*, 60 AM. U. L. REV. 1575 (2011) (criticizing subjective mental state requirements for inducement imported from tort law and calling for an objective standard); Sherkow, *supra* note 19 (arguing that the willful blindness standard is much more suited to criminal law than patent law); Ted Sichelman, *Minding Patent Infringement* (San Diego Legal Studies Paper No. 11-051, 2011), *available at* http://papers.ssrn.com/abstract=1734380 (arguing that intent to induce the infringing acts is sufficient mens rea for inducement, and knowledge that the acts constitute infringement is not required).

77. Bigio v. Coca-Cola Co., 675 F.3d 163, 172–73 (2d Cir. 2012) (quoting Insight Tech., Inc. v. FreightCheck, LLC, 633 S.E.2d 373, 379 (Ga. Ct. App. 2006)) (alterations omitted).

78. *See, e.g.*, Warner-Lambert Co. v. Apotex Corp., 316 F.3d 1348, 1364 (Fed. Cir. 2003) ("[S]pecific intent *and action* to induce infringement must be proven.") (citing *Manville*, 917 F.2d at 554) (emphasis added); Fromberg, Inc. v. Thornhill, 315 F.2d 407, 411 (5th Cir. 1963) ("[I]nducement has connotations of active steps knowingly taken—knowingly at least in the sense of purposeful, intentional, as distinguished from accidental or inadvertent.").

79. *See* 35 U.S.C. § 271(c) (2006).

80. Trevor J. Smedley & Ross A. Dannenberg, *Enforceability of Machine Patents in Virtual Worlds*, 13 J. INTERNET LAW 1, 7 (2010); *see, e.g.*, Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261 (Fed. Cir. 1986). Other examples of acts sufficient to support a finding of inducement include "[a]dvertising or promoting the use of a product in an infringing manner; . . . [p]roviding indemnification against infringement damages; and . . . [s]upplying or selling a product, knowing it

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In an article on indirect liability for intellectual property infringements, Mark Bartholomew likens inducement of infringement to accomplice liability in criminal law, which is concerned largely with the mens rea of the defendant and requires very little in the way of an outward act to satisfy the actus reus element of the crime.[82] Focusing on *Grokster*, a case in which a provider of a peer-to-peer file sharing service was held secondarily liable for copyright infringement, Bartholomew points out that the actus reus requirement is similarly de-emphasized for inducement liability in copyright law.[83] This is the case because, like accomplice liability, "inducement infringement punishes people for their outward expressions of commitment to unworthy values."[84] Calling this a "causation-free"[85] form of indirect infringement, Bartholomew notes that inducement liability will lie even when "the defendant tries to encourage the direct infringer's illegal activity, but the direct infringer misses the defendant's cues or already has its mind made up and does not need any additional egging on to commit the act of infringement."[86]

Although Bartholomew is correct that the level of activity legally required to meet the actus reus element of inducement is minimal, we have already seen that, in many § 271(b) cases, the inducing acts in fact turn out to be quite significant. These acts include providing instructions, training, advertising, and the like, that encourage customers to use the product (of course, also supplied by the inducer) in an infringing manner.[87] Thus, in contrast to the "causation-free" scenarios discussed by Bartholomew, the facts of many induced patent infringement cases reveal a tight causal link between the acts of the inducer and harm to the plaintiff. I argue below that the nature of the inducing acts and the manner in which they cause

will be used in an infringing manner." Smedley & Dannenberg, *supra*, at 7 (collecting cases) (footnotes omitted).

81. *See* Lemley, *supra* note 19, at 232 n.34.

82. *See* Mark Bartholomew, *Cops, Robbers, and Search Engines: The Questionable Role of Criminal Law in Contributory Infringement Doctrine*, 2009 BYU L. REV. 783, 805 ("[T]he actus reus requirement is of secondary importance as compared to the mens rea standard [in criminal law]. . . . [I]t does not take much to satisfy the actus reus standard in an accomplice liability case. The most trivial assistance is sufficient basis to render the secondary actor accountable for the actions of the primary actor. Proof of any form of participation is enough to support a conviction for accomplice liability, provided the requisite mental state has been established.") (footnotes and internal quotation marks omitted).

83. *Id.* at 841–42; *see* Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913 (2005).

84. Bartholomew, *supra* note 82, at 842.

85. *Id.* at 841.

86. *Id.* at 840.

87. *See supra* text accompanying notes 21 & 80.

infringement to occur should inform how we think of damages for inducement of infringement.[88]

D. Putting It All Together

For now, the overall story seems relatively simple. Some idiosyncratic features aside, liability for indirect patent infringement appears to look a lot like general civil secondary liability, requiring proof of an underlying primary tortious act, the knowing state of mind of the inducer, and an overt act of inducement or substantial assistance to the primary tortfeasor. One area where the general tort-patent infringement analogy breaks down, however, is in the two torts' respective approaches to damages.[89] When measuring money damages in patent infringement actions, fact-finders must often determine the value of the invaded right by imagining that the parties negotiated over it and arrived at mutually acceptable license terms.[90] While general tort law parallels to this sort of analysis do exist—the calculation of the market rental value of the imposed-upon land in trespass cases comes to mind[91]—the approach to measuring damages in patent law has a life all its own, relying on specialized principles not

88. *See infra* Part V.B.1.

89. The general tort-intellectual property infringement analogy also breaks down in that, at least in some indirect intellectual property infringement cases, knowledge of particular acts of infringement is de-emphasized and probabilistic harm is accepted as sufficient to meet the mens rea requirement. *See* McKenna, *supra* note 2, ¶¶ 8–10. As with the breakdown of the analogy in the area of damages, this breakdown is due in part to the fact that indirect intellectual property infringement cases present a diffuse, numerous, and poorly defined universes of direct infringers. *See supra* text accompanying notes 42–43. I thank Professor Mark McKenna for pointing this issue out to me.

90. *See generally infra* Part III.B. It is much more difficult to imagine this kind of a negotiation when measuring damages for accidents. *See generally* Randall R. Bovbjerg et al., *Valuing Life and Limb in Tort: Scheduling "Pain and Suffering,"* 83 NW. U. L. REV. 908 (1989). *But see* Darryl Biggar, *A Model of Punitive Damages in Tort*, 15 INT'L REV. L. & ECON. 1, 3–4 (1995) ("According to theory, the correct measure of the harm to the victim is the amount that the victim would have accepted ex ante to be induced to voluntarily undergo the injury. Just as some individuals value certain goods more highly than others, some individuals will be willing to pay more to avoid a certain injury than others. One individual might not willingly submit to a particular injury for anything less than $30,000 while another might refuse the injury unless offered $300,000.") (footnote omitted).

91. *See generally* Gideon Parchomovsky & Alex Stein, *Reconceptualizing Trespass*, 103 NW. U. L. REV. 1823 (2009) (analyzing the problem of measuring damages for trespass); *see also* SIRKO HARDER, MEASURING DAMAGES IN THE LAW OF OBLIGATIONS: THE SEARCH FOR HARMONISED PRINCIPLES 191–94 (2010). The concept of market value, to be sure, is rather difficult to apply in the patent context because each patent represents a unique (i.e., novel and nonobvious) invention. As noted by Justice Cardozo in *Sinclair Refining Co. v. Jenkins Petroleum Process Co.*, "[t]his is not a case where the recovery can be measured by the current prices of a market. A patent is a thing unique. There can be no contemporaneous sales to express the market value of an invention that derives from its novelty its patentable quality." 289 U.S. 689, 697 (1933).

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commonly encountered in the law of tort damages.[92] The superficially similar property-tort cases that address "hypothetical-fee" damages[93] are hardly an appropriate model for, say, the Outlook date-picker case.[94] Even if tort law precedents were of some value, their number is limited—the factual scenario of "inducement of trespass" upon land,[95] and particularly of one party's inducement of a multitude of trespasses, appears to be quite rare.[96] And so we are left with the questions of how to apply specialized patent damages doctrines to indirect infringement cases, and whether general tort law helps with this endeavor.[97] It is to the issue of patent

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92. Of course, there are many other significant differences between patent law and general tort law. For example,

> [i]n patent law, unlike in other areas of tort law—where the victim has no ability to define the injurious conduct upfront—the patentee specifically defines the boundaries of his or her exclusive rights in the claims appended to the patent and provides notice thereby to the public to permit avoidance of infringement.

Akamai Techs., Inc. v. Limelight Networks, Inc., 692 F.3d 1301, 1349 (Fed. Cir. 2012) (en banc) (Linn, J., dissenting), *rev'd*, 134 S. Ct. 2111 (2014). How well claims define patent rights is a highly controversial question. *See, e.g.*, Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PA. L. REV. 1743, 1746–47 (2009) (questioning how well patent claims delineate property rights); Tun-Jen Chiang, *Fixing Patent Boundaries*, 108 MICH. L. REV. 523, 525 (2010) (discussing problems with the notice function of claims).

93. HARDER, *supra* note 91, at 180–81, 191–92. Parchomovsky and Stein, in fact, believe that "market value" compensation for trespass to land does not adequately account for the invasion of the property right, though they focus on deliberate trespasses, where a negotiation is more than merely a theoretical possibility. *See* Parchomovsky & Stein, *supra* note 91, at 1832–35. The authors explain: "[T]he trespasser [in some scenarios] can almost always negotiate a transaction with the owner before trespassing. The owner's harm from a continuous trespass is different in kind from ordinary tort damages. This harm includes more than just a temporary occupation of the owner's property, damage to her land and fixtures, the cost of removing the trespass, and the psychological harm suffered from all of the above. It also includes the violation of the owner's right to exclude others." *Id.* at 1834.

94. *See supra* text accompanying notes 24–28.

95. *See* Bigio v. Coca-Cola Co., 675 F.3d 163, 171–72 (2d Cir. 2012) (collecting cases, some of which, however, use "trespass" in the general sense of "trespass on the case" rather than trespass to land).

96. For an amusing example, see Guille v. Swan, 19 Johns. 381, 381 (N.Y. Sup. Ct. 1822) ("Guille ascended in a balloon in the vicinity of Swan's garden, and descended into his garden. When he descended, his body was hanging out of the car of the balloon in a very perilous situation, and he called to a person at work in Swan's field, to help him, in a voice audible to the pursuing crowd. . . . When the balloon descended, more than two hundred persons broke into Swan's garden through the fences, and came on his premises, beating down his vegetables and flowers.") (emphases deleted). The court held that Guille was liable to Swan as a "co-trespasser" for the damage done by the crowd. *Id.* The National Academies' complaints against ticket scalpers, reciting counts of inducement of trespass, provide more recent examples. *See* Complaint, Nat'l Acad. of Recording Arts & Sci., Inc. v. On Point Events LP, 256 F.R.D. 678 (C.D. Cal. Feb. 7, 2008) (No. 2:08-CV-00856), *available at* http://reporter.blogs.com/thresq/files/OnPointGrammys.pdf; First Amended Complaint, Acad. of Motion Picture Arts & Sci. v. Schy, No. BC330928 (Cal. Super. Ct., Cty. of L.A., June 2, 2005), *available at* http://graphics8.nytimes.com/images/blogs/carpetbagger/ampas.pdf.

97. For a recent article arguing that tort law's "make-whole" approach is generally unsuitable for measuring patent damages, see Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEX. L. REV. 517 (2014).

damages and its language of "reasonable royalty," "hypothetical negotiation," and "the book of wisdom" that we now turn.

III. PRINCIPLES OF PATENT DAMAGES

A. The Patent Act, Reasonable Royalty, and Lost Profits

The remedies sections of the Patent Act do not distinguish between direct and indirect infringement—there are no separate rules for issuing injunctions or calculating damages for inducement of infringement or contributory infringement to be found in 35 U.S.C. §§ 283 or 284. Section 284 states simply that "the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer."[98] The reasonable royalty provision, which places a floor on the amount of monetary damages available to the plaintiff,[99] has been interpreted by the courts to call on the fact-finder to simulate a hypothetical patent licensing negotiation between the litigants.[100] This approach triggers a highly fact-intensive inquiry,[101] in which the fact-finder must reconstruct the parties' positions at the time when infringement began[102] and determine the royalty terms of a patent license they would have entered into had there been a negotiation over the patented technology.[103]

The lost profits method, a different approach to measuring patent infringement damages, requires "determin[ing] the sales and profits lost to the patentee because of the infringement."[104] This approach is used less

98. 35 U.S.C. § 284 (2006).

99. *See* Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc., 750 F.2d 1552, 1568 (Fed. Cir. 1984) ("A reasonable royalty thus is not necessarily the measure of damages, but 'is merely the floor below which damages shall not fall.'") (quoting Bandag, Inc. v. Gerrard Tire Co., 704 F.2d 1578, 1583 (Fed. Cir. 1983)).

100. *See* Eric E. Bensen & Danielle M. White, *Using Apportionment To Rein in the* Georgia-Pacific *Factors*, 9 COLUM. SCI. & TECH. L. REV. 1, 27 (2008) ("The most common approach taken by courts in determining a reasonable royalty is a 'hypothetical negotiation[] between willing licensor and willing licensee.'") (quoting Wang Labs., Inc. v. Toshiba Corp., 993 F.2d 858, 870 (Fed. Cir. 1993)).

101. *See* Patricia J. Kaeding, Comment, *Clearly Erroneous Review of Mixed Questions of Law and Fact: The Likelihood of Confusion Determination in Trademark Law*, 59 U. CHI. L. REV. 1291, 1312 (1992) (noting that reasonable royalty analysis "require[s] a court to make a highly fact-specific inquiry based on the relevant evidentiary factors").

102. *See, e.g.*, Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1079 (Fed. Cir. 1983) (citing Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1158 (6th Cir. 1978)).

103. Formally, the fact-finder is asked to determine both the royalty rate and the royalty base as subsidiary findings in the reasonable royalty analysis. In some cases, however, the fact-finder may also award a lump-sum royalty. *See infra* text accompanying notes 115–16.

104. Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1545 (Fed. Cir. 1995) (en banc) (citing Del Mar Avionics, Inc. v. Quinton Instrument Co., 836 F.2d 1320, 1326 (Fed. Cir. 1987)).

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commonly than the reasonable royalty method because it essentially requires the plaintiff to be a commercially active entity[105] and presents some difficulties of proof,[106] though it typically results in a higher recovery than the reasonable royalty measure.[107] These two methods, and their combination, are generally available to plaintiffs in both direct and indirect infringement cases.[108] Because the reasonable royalty method is the dominant approach to calculating patent damages, and is the only one that is, by statute, available in all cases, this Article will focus on reasonable royalty damages.[109]

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105. *See* Grain Processing Corp. v. Am. Maize-Prods. Co., 185 F.3d 1341, 1349 (Fed. Cir. 1999) ("To recover lost profits, the patent owner must show 'causation in fact,' establishing that 'but for' the infringement, he would have made additional profits.") (citing King Instruments Corp. v. Perego, 65 F.3d 941, 952 (Fed. Cir. 1995)); Amy L. Landers, *Liquid Patents*, 84 DENV. U. L. REV. 199, 242–43 (2006) ("The fundamental question for determining whether a patentee can obtain lost profits is whether the patentee can demonstrate with reasonable probability that, but for the infringement, *the patentee would have made the sales that were made by the infringer*.") (citing *Rite-Hite*, 56 F.3d at 1545) (emphasis added).

106. *See* CRAIG ALLEN NARD & R. POLK WAGNER, PATENT LAW 210 (2008) ("[P]roving lost profits is a difficult business, and in some cases patentees will simply be unable to prove what 'would have happened' absent infringement; in these cases a reasonable royalty award is the only possibility.").

107. Dennis S. Corgill, *Competitive Injury and Non-Exclusive Patent Licensees*, 71 U. PITT. L. REV. 641, 652 (2010) ("The general wisdom . . . is that lost profits damages will be greater [than reasonable royalty damages].") (citing F. SCOTT KIEFF ET AL., PRINCIPLES OF PATENT LAW 1324 (4th ed. 2008)); Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalty*, 51 WM. & MARY L. REV. 655, 661 n.32 (2009) (providing an economic explanation for the difference in plaintiffs' recovery between the two methods). *But see* Monsanto Co. v. McFarling, 488 F.3d 973, 978–80 (Fed. Cir. 2007) (reasonable royalty damages awarded were more than six times plaintiff's lost profits once the "benefit conferred" on the defendant was considered); *see also* Powell v. Home Depot U.S.A., Inc., 663 F.3d 1221, 1238–39 (Fed. Cir. 2011) ("While either the infringer's or the patentee's profit expectation may be considered in the overall reasonable royalty analysis, . . . neither is an absolute limit to the amount of the reasonable royalty that may be awarded upon a reasoned hypothetical negotiation analysis. . . .") (citing Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)).

108. *See* State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1577 (Fed. Cir. 1989) ("[T]he award may be split between lost profits as actual damages to the extent they are proven and a reasonable royalty for the remainder."); Lawrence M. Sung, *Patent Infringement Remedies*, *in* 2 INTELLECTUAL PROPERTY AND INFORMATION WEALTH: ISSUES AND PRACTICES FOR THE DIGITAL AGE 169, 171 (Peter K. Yu ed., 2007) ("[P]atent law permits damages awards to encompass both lost profits and a reasonable royalty on that portion of an infringer's sales not included in the lost profits calculation.").

109. I believe that the atomistic approach is usually in error when lost profits is the measure of damages, although for different reasons than the reasonable royalty. *See infra* note 336 and accompanying text.

B. Reasonable Royalty: Hypothetical Negotiation, the Book of Wisdom, Royalty Rate, and Royalty Base

1. Basic Principles

The purpose of the reasonable royalty provision is to measure the harm to the patentee's "right to exclude"[110] by acts of patent infringement, such as by the making, using, or selling of items—sometimes called "accused products"—that embody one or more claims of the patents in suit. The Federal Circuit explained that "[a] reasonable royalty calculation envisions and ascertains the results of a hypothetical negotiation between the patentee and the infringer at a time before the infringing activity began. Thus, the reasonable royalty calculus assesses the relevant market as it would have developed before and absent the infringing activity."[111] In an important recent case, *Uniloc USA, Inc. v. Microsoft Corp.*,[112] the Federal Circuit reaffirmed the principle that the hypothetical negotiation analysis aims to guide the fact-finder toward arriving at commercially reasonable license terms that should serve as the basis for reasonable royalty damages.[113]

In determining the reasonable royalty, the fact-finder is invited to consider a non-exclusive list of fifteen so-called "*Georgia-Pacific* factors," which reflect considerations that the parties would have taken into account had they negotiated a patent license.[114] These factors[115] may

110. 35 U.S.C. § 154(a)(1) (2006) ("[A patent grant provides] the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States.").

111. Integra Lifesciences I, Ltd. v. Merck KGaA, 331 F.3d 860, 869–70 (Fed. Cir. 2003) (citing Riles v. Shell Exploration & Prod. Co., 298 F.3d 1302, 1311 (Fed. Cir. 2002)), *rev'd on other grounds*, 545 U.S. 193 (2005).

112. 632 F.3d 1292 (Fed. Cir. 2011).

113. *Uniloc* discarded the so-called "25% rule of thumb," under which the reasonable royalty damages were typically calculated as "25 per cent of [the infringer's] expected profits for the product that incorporates the IP at issue," because that rule was inconsistent with the hypothetical negotiation approach. *Id.* at 1312 (quoting Robert Goldscheider, John Jarosz & Carla Mulhern, *Use of the 25 Per Cent Rule in Valuing IP*, 37 LES NOUVELLES 123, 123 (Dec. 2002)). After stating that "a reasonable royalty is often determined on the basis of a hypothetical negotiation, occurring between the parties at the time that infringement began," the court explained that "the rule is essentially arbitrary and does not fit within the model of the hypothetical negotiation within which it is based." *Id.* at 1312–13 (citing Wang Labs., Inc. v. Toshiba Corp., 993 F.2d 858, 869–70 (Fed. Cir. 1993)). Of course, there are some accepted assumptions within the hypothetical negotiation framework that are not commercially reasonable, reflecting the fact that the "license terms" are determined during litigation and not in the course of an arms-length negotiation. *See infra* text accompanying notes 123–28.

114. *See* Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified sub nom.* Ga.-Pac. Corp. v. U.S. Plywood-Champion Papers, Inc., 446 F.2d 295 (2d Cir. 1971).

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be used to arrive at the terms of a hypothetical "ongoing" or running royalty—the royalty rate expressed as a percentage and the corresponding royalty base, such as the sales price of the infringing product. The two are then multiplied to achieve the final damages figure.[116] The overall approach is counterfactual—after all, the parties would not have been in litigation had they entered into a license—and one Federal Circuit opinion colorfully characterized the hypothetical negotiation analysis as requiring "more the talents of a conjurer rather than those of a judge."[117] While this approach simulates the terms that a willing licensor would have agreed upon with a willing licensee, it is possible that the patent owner would not have been willing to license the patent at all.[118]

Another challenge of the hypothetical negotiation approach is its temporal aspect. The fact-finder must imagine the negotiation at the time the infringement began, not at the time of litigation.[119] Of course, the fact-finder is not required to ignore completely events that occur after the initial instance of infringement.[120] This "post-negotiation" information,

115. The *Georgia-Pacific* factors include the rates paid by the defendant "for the use of other patents comparable to the patent in suit"; the nature of the commercial relationship between plaintiff and defendant, "such as, whether they are competitors in the same territory in the same line of business"; "[t]he established profitability of the product made under the patent; its commercial success; and its current popularity"; "[t]he utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results"; "the nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention"; "[t]he extent to which the infringer has made use of the invention; and any evidence probative of the value of that use"; and "[t]he portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer." *Id.*

116. Sometimes, however, the *Georgia-Pacific* hypothetical negotiation approach produces a lump-sum royalty figure rather than a combination of a royalty rate and a royalty base. *See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325–28 (Fed. Cir. 2009); *see also* DONALD S. CHISUM, CHISUM ON PATENTS § 20.07[2][j][v] (2012) (summarizing and critiquing *Lucent*'s discussion of damages awards derived through the lump-sum rather than the ongoing-royalty approach and explaining what evidence plaintiffs would need to support a jury award of damages under either approach).

117. Fromson v. W. Litho Plate & Supply Co., 853 F.2d 1568, 1574 (Fed. Cir. 1988).

118. Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1554 n.13 (Fed. Cir. 1995) (en banc) ("The hypothetical negotiation is often referred to as a 'willing licensor/willing licensee' negotiation. However, this is an inaccurate, and even absurd, characterization when, as here, the patentee does not wish to grant a license.").

119. *See, e.g.*, Riles v. Shell Exploration & Prod. Co., 298 F.3d 1302, 1313 (Fed. Cir. 2002) ("A reasonable royalty determination for purposes of making a damages evaluation must relate to the time infringement occurred, and not be an after-the-fact assessment."); Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1079 (Fed. Cir. 1983) (citing Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1158 (6th Cir. 1978)).

120. *See* Sinclair Ref. Co. v. Jenkins Petroleum Process Co., 289 U.S. 689, 697 (1933) ("The use that has been made of the patented device is a legitimate aid to the appraisal of the value of the patent

such as the extent of the adoption of the accused product, may serve as a valuable "book of wisdom"[121] informing the fact-finder about how the parties would have valued the patented invention at the time of the hypothetical negotiation. Nevertheless, in several cases, the Federal Circuit determined that the fact-finder overvalued the patented invention by focusing on the extent of infringing use and failing to "go back in time" to consider how the parties would have approached the licensing negotiation at the time of the first act of infringement.[122]

There are other tricky and commercially unrealistic elements in the hypothetical negotiation approach. Because courts assess damages only in cases where a patent was found to be valid and infringed, the fact-finder is asked to calculate the royalty based on the assumption that the parties would have agreed upon the validity and infringement of the patent at the time of the negotiation.[123] In real life, however, parties discount the royalty rate by the probability that the patent is invalid or not infringed.[124] Furthermore, in cases where injunctions are not granted, the courts worry that the damages award will approximate something like a compulsory

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at the time of the breach."); *accord* Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (positing that "[t]he extent to which the infringer has made use of the invention; and any evidence probative of the value of that use" is one of the factors in determining the reasonable royalty).

121. *Sinclair*, 289 U.S. at 698. Justice Cardozo explained why "the book of wisdom" is helpful in patent cases:

> A patent is a thing unique. There can be no contemporaneous sales to express the market value of an invention that derives from its novelty its patentable quality. But the absence of market value does not mean that the offender shall go quit of liability altogether. *The law will make the best appraisal that it can, summoning to its service whatever aids it can command*.

Id. at 697 (emphasis added) (citations omitted).

122. *See* Integra Lifesciences I, Ltd. v. Merck KGaA, 331 F.3d 860, 871 (Fed. Cir. 2003), *rev'd on other grounds*, 545 U.S. 193 (2005) ("The parties' inability to project success at the pre-clinical research stage of the [project covered by a patent under a hypothetical license] weighs heavily in determining a reasonable royalty . . . ."); *Riles*, 298 F.2d at 1313 ("[The expert's] models did not reflect what royalty rate a hypothetical negotiation between Shell and Riles would have yielded at the time the infringement began. Instead, the models reflected [the expert's] assessment of the worth of [the accused product] at the time of the trial. Riles did not provide any evidence or testimony to show that [the expert's] models reflected what the parties might have agreed to, at any time, particularly at the time the infringement began."); *see also infra* text accompanying notes 270–74.

123. *See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("The hypothetical negotiation . . . assumes that the asserted patent claims are valid and infringed."); TP Orthodontics, Inc. v. Prof'l Positioners, Inc., 20 U.S.P.Q.2d (BNA) 1017, 1025 (E.D. Wis. 1991), *aff'd*, 980 F.2d 743 (Fed. Cir. 1992); Schneider (Eur.) AG v. Scimed Life Sys., Inc., 852 F. Supp. 813, 847 (D. Minn. 1994).

124. *See, e.g.*, Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 642 (2010) ("Nearly half of all litigated patents are held invalid, and many of the rest are not infringed. Patentees win only just under a quarter of the cases they bring. Companies negotiating a license know this, and licenses incorporate that uncertainty in the royalty rate.") (footnotes omitted).

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license.[125] If money damages awarded in litigation are too close to the amount of royalties that the defendant would have had to pay anyway after an arms-length negotiation, there would be no incentive to negotiate—why not take one's chances in litigation where you might win and not have to pay anything at all?[126] Although the courts have not explicitly mandated adding a specific "kicker" to the hypothetically negotiated royalty rate to make patent damages awards seem less like compulsory licenses, royalty rates calculated in patent infringement cases are often much greater than the rates accepted in the industry.[127] This result may reflect the "valid-and-infringed" assumption as well as an implicit royalty kicker.[128]

Various other aspects of the hypothetical negotiation approach remain controversial.[129] By way of just a few examples, commentators have criticized the *Georgia-Pacific* factors as unwieldy and unhelpful,[130] argued that the "valid-and-infringed" assumption has been misused and tends to overvalue patents,[131] and contended that the *Georgia-Pacific* framework is

125. *See* Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1158 (6th Cir. 1978) ("The setting of a reasonable royalty after infringement cannot be treated . . . as the equivalent of ordinary royalty negotiations among truly 'willing' patent owners and licensees. That view would constitute a pretense that the infringement never happened. It would also make an election to infringe a handy means for competitors to impose a 'compulsory license' policy upon every patent owner."). *Cf.* Parchomovsky & Stein, *supra* note 91 (analyzing an analogous problem in real property law).

126. *See* Durie & Lemley, *supra* note 124, at 642 ("[A] damage award that just reflected what parties to actual licenses agreed upon would systematically undercompensate patent owners. It might even encourage potential licensees to take their chances in court, figuring that if they lost they would just have to pay a normal license fee, though anyone who did in fact make that decision is probably a willful infringer subject to enhanced damages."). *But see* Brian J. Love, *The Misuse of Reasonable Royalty Damages as a Patent Infringement Deterrent*, 74 MO. L. REV. 909, 925–34 (2009) (explaining why other considerations, including litigation costs and enhanced damages for willful infringement, can deter this kind of "rational infringement" behavior).

127. *See, e.g.*, JANICE M. MUELLER, PATENT LAW 508 (3d ed. 2009) ("[T]he Federal Circuit characterizes the hypothetical negotiation approach as an attempt to 'do justice' to the patentee, and in some cases has affirmed the award of royalty rates significantly above industry norms.") (footnotes omitted).

128. *See* Love, *supra* note 126, at 916–19 (arguing that the reasonable royalty approach provides excessive damages and noting cases with "inflated" reasonable royalties).

129. For a comprehensive critique of the hypothetical negotiation construct, see 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).

130. *See generally* Durie & Lemley, *supra* note 124 (criticizing the *Georgia-Pacific* factors and arguing for a simplified approach).

131. Love, *supra* note 126, at 920 (identifying "an ongoing trend in patent law nudging the reasonable royalty formulation further and further away from the traditional willing licensor-willing licensee negotiation and, therefore, from representing the market value of the patented invention," so that "in setting reasonable royalties, finders of fact are not bound by the economic realities of the marketplace"); *see also id.* at 928–30 (discussing the "valid and infringed" assumption).

not appropriate for modern, complex multi-component inventions.[132] The courts, for their part, have called the willing licensor/willing licensee framework "absurd,"[133] and one opinion even observed that "the use of a willing licensee-willing licensor model for determining damages 'risks creation of the perception that blatant, blind appropriation of inventions patented by individual, nonmanufacturing inventors is the profitable, can't-lose course.'"[134] Nevertheless, though certainly flawed in many respects, the *Georgia-Pacific* hypothetical negotiation approach continues to provide a solution to the difficult problem of measuring the legal harm to the right to exclude in the form of a reasonable royalty. Indeed, the courts still use it routinely to determine money damages in spite of scholarly (and judicial) critiques.[135]

2. *Summary and Implications*

The hypothetical negotiation attempts to simulate a contract (i.e., a patent license) and approximate commercial realities of the marketplace in order to aid the fact-finder in the determination of patent infringement damages. Several guiding principles become apparent from the hypothetical negotiation cases: (1) the fact-finder must focus on the parties' positions at the time infringement began;[136] (2) judges should generally resist parties' attempts to advocate for arbitrary and inflexible rules to cabin what should be a highly fact-specific determination;[137] and (3) the fact-finder must be guided by the evidence of what the parties

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132. *See* Christopher B. Seaman, *Reconsidering the* Georgia-Pacific *Standard for Reasonable Royalty Patent Damages*, 2010 BYU L. REV. 1661.

133. *See supra* text accompanying note 118.

134. *See* Maxwell v. J. Baker, Inc., 86 F.3d 1098, 1109 (Fed. Cir. 1996) (quoting Fromson v. W. Litho Plate & Supply Co., 853 F.2d 1568, 1575 (Fed. Cir. 1988)).

135. *See, e.g.*, Laserdynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 60 n.2 (Fed. Cir. 2012) ("This court has sanctioned the use of the *Georgia-Pacific* factors to frame the reasonable royalty inquiry. Those factors properly tie the reasonable royalty calculation to the facts of the hypothetical negotiation at issue.") (citing Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292, 1317 (Fed. Cir. 2011)); WhitServe, LLC v. Computer Packages, Inc., 694 F.3d 10, 27 n.11 (Fed. Cir. 2012) (reciting and applying the *Georgia-Pacific* factors); Powell v. Home Depot U.S.A., Inc., 663 F.3d 1221, 1238–39 (Fed. Cir. 2011).

136. *See supra* text accompanying notes 119–22; *see also* THE FED. CIRCUIT BAR ASS'N, MODEL PATENT JURY INSTRUCTIONS 70 (2010), *available at* http://memberconnections.com/olc/filelib/LVFC/cpages/9004/Library/2012%20Updated%20FCBA%20Model%20Patent%20Jury%20Instructions.pdf (last updated Feb. 2012) ("[Y]ou should focus on what the expectations of the patent holder and the infringer would have been had they entered into an agreement at that time. . . . Although evidence of the actual profits an alleged infringer made may be used to determine the anticipated profits at the time of the hypothetical negotiation, *the royalty may not be limited or increased based on the actual profits the alleged infringer made*.") (emphasis added).

137. *See supra* text accompanying notes 112–13.

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would have done had they participated in a real-world negotiation.[138] In both direct and indirect infringement cases, the courts repeatedly emphasize the need to "go back in time" and approach the problem from the perspective of the parties in a manner that is as economically realistic as possible.[139]

It is against the backdrop of these considerations that the next two Parts should be understood. On the one hand, the tort law principle of imputing the acts of the primary tortfeasor to the secondarily liable party,[140] with the corollary that indirect infringers compensate the plaintiff for the harm occasioned by the direct infringers, pulls in the direction of tying indirect infringement damages to acts of direct infringement. Formally, then, the fact-finder must determine the extent to which the direct infringers have collectively harmed the patent owner's right to exclude and "charge" this amount to the inducer.[141] Nevertheless, one quickly realizes that a hypothetical negotiation between the plaintiff and multiple direct infringers, such as customers, makes little sense. Consistent with this intuition, the courts in indirect infringement cases typically assume, without even giving the question a second thought, that the relevant negotiation would have taken place between the plaintiff and the indirect infringer, rather than the multitude of individual direct infringers.[142] This observation suggests that the imputation principle may not be very helpful in the analysis of reasonable royalty damages.

The question is, then, whether the imputation principle and the hypothetical negotiation approach can be made consistent. The larger issue is what, if anything, judges should do about this tension—whether in their roles as jury instructors, fact-finders, evidence gatekeepers, or managers of patent damages in the procedural postures of summary judgment or judgment as a matter of law. The notion that, in many patent infringement cases, the inducer rather than the direct infringer is the "truly responsible party"[143] complicates matters further. The next Part considers how the courts have grappled with these issues.

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138. *See supra* text accompanying notes 114–16.

139. *See supra* text accompanying note 122. *See generally* William C. Rooklidge & Martha K. Gooding, *When Hypothetical Turns to Fantasy: The Patent Reasonable Royalty Hypothetical Negotiation*, 80 PAT. TRADEMARK & COPYRIGHT J. (BNA) 700 (2010).

140. *See supra* text accompanying notes 5–12.

141. *See supra* text accompanying note 39.

142. *See, e.g.*, Laserdynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 60 (Fed. Cir. 2012); Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1324–26 (Fed. Cir. 2009); *see also infra* Part V.A.2.

143. *See supra* text accompanying notes 18–19.

IV. EVIDENTIARY AND ATOMISTIC APPROACHES TO INDIRECT INFRINGEMENT DAMAGES

A. Lucent*'s Evidentiary Approach: The Probative Value of Proven Acts of Direct Infringement for Indirect Infringement Damages*

1. Background and Infringement Liability

With the background principles of indirect infringement and patent damages laid out, I now consider in detail *Lucent Technologies, Inc. v. Gateway, Inc.*,[144] the Microsoft Outlook date-picker case. This case exemplifies the evidentiary approach to indirect infringement damages;[145] that is, an approach that uses proven acts of direct infringement as bearing on, but not determinative of, the amount of damages.

The patent in suit in *Lucent* was directed to a "method of entering information into fields on a computer screen without using a keyboard,"[146] and accused products like Outlook could be used to infringe the patent's method claims. Specifically, Lucent argued that the claims covered the date-picker feature of Outlook, which allows a computer user to schedule appointments by clicking on a graphical calendar layout.[147] Lucent apparently could not, or did not try, to show that any employees of Dell, Gateway, or Microsoft, the defendants in the case, performed the patented method. Lucent thus had to rely on indirect infringement theories, seeking to hold the computer and software makers liable for the infringing acts of their customers.[148]

The Federal Circuit upheld the jury verdict of infringement. The court concluded that substantial evidence supported all the elements of indirect liability, including direct infringement by Outlook users.[149] It explained that "circumstantial documentary evidence . . . was just barely sufficient to permit the jury to find direct infringement by a preponderance of the evidence."[150] Relying on the notion that the number of proven directly infringing acts need only be de minimis to support a finding of indirect infringement, the court added that "the jury . . . could have reasonably

144. 580 F.3d 1301.
145. *See supra* text accompanying note 45.
146. *Lucent*, 580 F.3d at 1308.
147. *Id.* at 1317.
148. *Id.* at 1317–19.
149. *Id.* at 1317; *see also id.* at 1320–23 (holding that substantial evidence supported proof of the other elements of indirect liability); *supra* Part II (discussing the elements of indirect liability).
150. *Lucent*, 580 F.3d at 1318.

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concluded that, sometime during the relevant period from 2003 to 2006, more likely than not *one person somewhere in the United States* had performed the claimed method using the Microsoft products."[151]

2. Reasonable Royalty Damages

The jury award of damages in *Lucent* was determined using the reasonable royalty method.[152] At the damages phase of the trial, Lucent argued that the proper compensation would have been an eight percent royalty on the "110 million units of the three software products capable of practicing the methods of the asserted claims,"[153] leading to a payout of $561.9 million. In contrast, Microsoft contended that a lump-sum payment of $6.5 million would have been adequate for licensing the claims that its customers directly infringed.[154] The jury chose neither party's number and awarded Lucent a lump sum of $357,693,056.18.[155]

On appeal, the defendants (led by Microsoft, the maker of Outlook) challenged the damages award on several grounds. One of Microsoft's arguments was that, for method claims, "damages [must] be limited to the proven number of instances of actual infringing use."[156] In other words, Microsoft wanted the court to allow assessment of royalties only on those sales of Outlook for which the plaintiff could prove that the end user actually utilized the software in an infringing manner. The Federal Circuit rejected this challenge.[157]

In refusing to adopt Microsoft's approach to limiting the damages, the court recognized that, in real-world licenses, royalties between a patentee and a manufacturer of a consumer product are not always tied to the extent of utilization of the claimed invention by end users. In so doing, the court articulated what it viewed as the proper role of proven directly infringing conduct in the damages analysis:

> Consideration of evidence of usage after infringement started can . . . be helpful to the jury and the court in assessing whether a royalty is reasonable. Usage (or similar) data may *provide*

151. *Id.* (emphasis added).
152. *See supra* Part III.B.
153. *Lucent*, 580 F.3d at 1323.
154. *Id.*
155. *Id.* at 1324.
156. *Id.* at 1323 (citing Dynacore Holdings Corp. v. U.S. Philips Corp., 363 F.3d 1263 (Fed. Cir. 2004)).
157. *Id.* at 1324. The court did vacate the award of damages on other grounds, ruling that it was "based mainly on speculation or guesswork." *Id.* at 1335; *see infra* text accompanying notes 172–76.

> *information that the parties would frequently have estimated during the negotiation. . . .*
>
> On the other hand, *we have never laid down any rigid requirement that damages in all circumstances be limited to specific instances of infringement proven with direct evidence. Such a strict requirement could create a hypothetical negotiation far removed from what parties regularly do during real-world licensing negotiations*. As shown by the evidence in this case, companies in the high-tech computer industry often strike licensing deals in which the amount paid for a particular technology is not necessarily limited to the number of times a patented feature is used by a consumer. A company licensing a patented method often has strong reasons not to tie the royalty amount strictly to usage. . . . [P]otential licensors and licensees routinely agree to royalty payments regardless of whether the invention is used frequently or infrequently by the consumer. . . .
>
> *. . . The damages award ought to be correlated, in some respect, to the extent the infringing method is used by consumers*. *This is so because this is what the parties to the hypothetical negotiation would have considered.*[158]

This passage confuses matters slightly with its mention of "direct evidence." One possible reading of the sentence ending with "specific instances of infringement proven with direct evidence" is that the damages base can never include instances of direct infringement not proven with direct evidence. This reading, however, cannot be correct because circumstantial (as opposed to direct) evidence is generally acceptable to support a jury verdict or a judge's decision in all areas of law. It is up to the fact-finder to weigh the circumstantial evidence and infer from it the existence of facts that tend to prove liability or damages. Indeed, circumstantial evidence has been used to support everything from murder convictions to verdicts in products liability cases, and is often thought to be more probative than direct evidence.[159] So it is in patent law. The courts in patent cases have consistently held that circumstantial evidence can

158. *Lucent*, 580 F.3d at 1333–34 (emphasis added) (citations omitted).

159. *See, e.g.*, Kevin Jon Heller, *The Cognitive Psychology of Circumstantial Evidence*, 105 MICH. L. REV. 241, 241 (2006) ("Empirical research indicates that jurors routinely undervalue circumstantial evidence (DNA, fingerprints, and the like) and overvalue direct evidence (eyewitness identifications and confessions) when making verdict choices, *even though false-conviction statistics indicate that the former is normally more probative and more reliable than the latter*.") (emphasis added).

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support fact-finders' determinations[160]—and it would have been absurd to rule otherwise. *Lucent* meant that direct evidence is not required to prove specific instances of direct infringement, and that damages must not always be limited to such instances. The reference to "direct evidence" is merely a truism.

The rest of the passage makes clear that, in the *Lucent* court's view, indirect infringement damages must not always be limited to proven instances of direct infringement. The court's discussion of "real-world licensing negotiations" and "royalty amounts" that are not tied strictly to usage and paid out "regardless of whether the invention is used frequently or infrequently by the consumer"[161] reinforces this conclusion. This discussion reveals that, to the *Lucent* court, evidence of the extent of the direct infringement was simply a useful "book of wisdom"[162] that could help the fact-finder understand the positions of the parties at the time infringement began. This view is consistent with Federal Circuit opinions that came before *Lucent*, including the well-known case of *Hanson v. Alpine Ski Valley Area, Inc.*[163] that *Lucent* cited. Crucially, the court did not authorize a rigid limit on damages based on the number of instances of direct infringement proven by direct (or circumstantial) evidence, and there is nothing in the opinion to suggest that its approach is limited to lump-sum awards only.[164]

Lucent thus comports with the three principles of reasonable royalty analysis outlined above—the fact-finder should put itself into the shoes of the parties at the time of initial infringement, avoid inflexible rules, and attempt to account for what patent licensees and licensors do in the real world.[165] Taking the construct of the hypothetical license negotiation seriously, *Lucent* held that the prevalence of directly infringing acts is relevant, but not determinative, in the reasonable royalty calculation. Under *Lucent*'s evidentiary approach, the number of proven acts of direct

160. *See, e.g.*, Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1272 (Fed. Cir. 1986) ("If [the defendant] is arguing that proof of inducing infringement or direct infringement requires *direct*, as opposed to *circumstantial evidence*, we must disagree. It is hornbook law that direct evidence of a fact is not necessary. 'Circumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive than direct evidence.'") (quoting Michalic v. Cleveland Tankers, Inc., 364 U.S. 325, 330 (1960)); *see also* Water Techs. Corp. v. Calco, Ltd., 850 F.2d 660, 668–69 (Fed. Cir. 1988).

161. *Lucent*, 580 F.3d at 1334.

162. Sinclair Ref. Co. v. Jenkins Petroleum Process Co., 289 U.S. 689, 698 (1933).

163. 718 F.2d 1075 (Fed. Cir. 1983); *see also infra* Part V.A.2 (discussing *Hanson* in greater detail).

164. *See infra* text accompanying notes 170–71.

165. *See supra* text accompanying notes 136–39.

infringement embodies one of the *Georgia-Pacific* factors[166]—specifically, the eleventh factor, which is "[t]he extent to which the infringer has made use of the invention; and any evidence probative of the value of that use."[167]

Although the indirect infringer does not literally "make use" of the invention but rather induces or contributes to its manufacture, use, or sale (or import),[168] the *Lucent* court was not deterred from applying the *Georgia-Pacific* hypothetical negotiation construct to the parties accused of indirect infringement. It understood that, once infringement liability has been determined, the subsequent reasonable royalty inquiry is a necessarily flexible task of intuiting how the parties would have valued the asserted claims in a license agreement.[169]

Having adopted this approach in an indirect infringement case, *Lucent* logically viewed the patent owner as the "pseudo-licensor" and the indirect infringer as the "pseudo-licensee." Based on *Georgia-Pacific* and its sense of commercial reality, the court understood that Lucent and Microsoft would have considered the predicted extent of the patented feature's utilization by the direct infringers—here, Outlook users—in setting the royalty rate or determining the lump-sum royalty.[170] Furthermore, if it were known at the time of the negotiation that the product to be licensed

166. *See supra* text accompanying notes 114–18.

167. Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1333 (Fed. Cir. 2009) (quoting Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)). To be sure, in cases where the reasonable royalty is calculated as a product of a royalty rate and base rather than a lump sum, *Georgia-Pacific* factors are typically thought to aid in determining the rate only. *See* CHISUM ON PATENTS, *supra* note 116, § 20.07[2], at 20-1218-19 (explaining that *Georgia-Pacific* factors are used to set a reasonable royalty rate). The rate is then multiplied by the royalty base, which is presumably determined by some separate inquiry. *See infra* text accompanying note 253. Nonetheless, this rate/base distinction is not a hard-and-fast rule that the courts adhere to rigorously in every case—the *Georgia-Pacific* factors are simply a guide for determining the royalty, however the fact-finder is to do it. *See, e.g.*, Powell v. Home Depot U.S.A., Inc., 663 F.3d 1221, 1239 (Fed. Cir. 2011) (referring to the "*amount of the reasonable royalty* that may be awarded upon a reasoned hypothetical negotiation analysis under the *Georgia-Pacific* factors") (emphasis added); *see also* CHISUM ON PATENTS, *supra* note 116, § 20.07[b], at 20-1275-65 ("Courts give weight to the licensing customs in the industry and actual licenses on comparable patents in determining both the royalty rate and the base for the reasonable royalty.") (citation omitted); *id.* § 20.07[j], at 20-1422 ("No doubt there is nothing inappropriate in adopting a royalty base that the parties would likely have used in a real world negotiation . . . ."). However one gets there, it stands to reason that both the royalty rate and the royalty base must reflect what parties would have considered. *See supra* text accompanying notes 136–39. I thank Professor David Schwartz for bringing this point to my attention.

168. *Cf.* 35 U.S.C. § 271(a) (2006).

169. *Lucent*, 580 F.3d at 1324–25; *see also supra* text accompanying note 113.

170. *Lucent*, 580 F.3d at 1334.

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had significant noninfringing uses or included various noninfringing features, the parties would have surely taken these facts into account.[171]

Ultimately, the court vacated the jury award because "[n]o evidence describes how many . . . users had ever performed the patented method or how many times," which meant that Lucent failed to carry its "burden to prove that the extent to which the infringing method has been used supports the lump-sum damages award."[172] Thus, instead of capping the damages based on enumerated instances of directly infringing use, the court relied on substantial evidence principles to vacate a damages award that appeared to come out of thin air.[173] To sustain the award, Lucent should have attempted to estimate what percentage of Outlook users performed the claimed method and relate it to the hypothetical license negotiation.[174] Perhaps, Lucent could have even tried to argue that the parties would not have tied the royalty to the predicted extent of the usage of the claimed feature.[175] The bottom line is that Lucent failed to provide the evidence needed to support the jury award of damages.

Although it vacated the award, the Federal Circuit did not take up Microsoft's apparent invitation to completely eliminate from the damages calculus those units of Outlook for which Lucent could not prove direct infringement.[176] While Lucent should have presented more evidence than it did at trial to justify the award, it was not limited as a matter of law to reasonable royalties from only those sales of Outlook that ultimately led to infringing uses. Instead, the Federal Circuit held that the extent of actual use of the patented feature constitutes useful evidence of the parties' valuation of the patented invention at the time of the hypothetical negotiation.

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171. *Id.* at 1326–27, 1334.

172. *Id.* at 1334–35.

173. *Id.* at 1324 ("[The damages] award is not supported by substantial evidence and is against the clear weight of the evidence.").

174. *Id.* at 1334.

175. *Id.* For example, the parties might not have closely tied the royalty to actual usage of the date-picker feature due to administrative costs of monitoring the usage (a fact that may be demonstrated by evidence of industry licensing customs). Nevertheless, if the claimed feature were to be rarely used, the fact-finder could well arrive at the conclusion that the parties to a hypothetical license would not have valued that feature very highly ex ante. If so, the fact-finder would award damages in the form of an accordingly low lump-sum royalty (or a very low royalty *rate*, in cases where the running royalty approach was used). The low damages amount would thus reflect the parties' expectation of limited use of the patented feature in the licensed product. This is a simple application of the "book of wisdom" principle. *See supra* text accompanying note 162.

176. *Lucent*, 580 F.3d at 1323–24, 1334.

B. The Atomistic Approach of Cardiac Pacemakers

1. Background

Lucent was decided on September 11, 2009. Less than a month earlier, on August 19, the Federal Circuit decided *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*,[177] a case that said something quite different about the relationship between indirect infringement damages and proven acts of direct infringement. *Cardiac Pacemakers* is emblematic of what I call the atomistic approach to indirect infringement damages.[178] In this procedurally complex case,[179] the plaintiff, Cardiac, accused St. Jude of infringing its patents by selling implantable cardiac devices (ICDs).[180] As summarized by the Federal Circuit, "ICDs are small devices that detect and correct abnormal heart rhythms that can be fatal if left untreated. The ICDs . . . work by administering electrical shocks to the heart, those shocks being calibrated to restore normal heart functioning."[181] Crucial to the issue of damages on appeal, ICDs "can be programmed to administer different types of electrical shocks,"[182] including a relatively familiar procedure called defibrillation[183] and a lesser-known procedure called cardioversion. Defibrillation entails applying high-energy shocks to the heart to treat acute, life-threatening disturbances in the heart's rhythm; by contrast, cardioversion requires less energy and is used to treat disturbances that are less severe.[184] The ICD is typically capable of both of

177. 576 F.3d 1348 (Fed. Cir. 2009) ("Cardiac II").

178. *See supra* note 44 and accompanying text.

179. *See Cardiac II*, 576 F.3d at 1352–53 (recounting procedural history of the case).

180. *Id.* at 1352. The acronym "ICD" can sometimes stand for "implantable cardioverter defibrillator." *See What Is an Implantable Cardioverter Defibrillator?*, NAT'L HEART, LUNG, & BLOOD INST. (Nov. 9, 2011), http://www.nhlbi.nih.gov/health/health-topics/topics/icd (last visited Jan. 11, 2014). To make matters even more complicated, "ICD" can also stand for "implantable cardiac defibrillator." *See Implantable Cardiac Defibrillators (ICDs)*, MEDICINENET.COM, http://www.medicinenet.com/implantable_cardiac_defibrillator/article.htm (last visited Jan. 11, 2014). As will soon become clear, however, "implantable cardiac device" was probably the definition of "ICD" with the least potential for creating unfair prejudice in the *Cardiac Pacemakers* litigation.

181. *Cardiac II*, 576 F.3d at 1352.

182. *Id.*

183. To be clear, the defibrillators at issue were implantable and not the external defibrillators one finds at stadiums and concert venues.

184. *See Cardiac II*, 576 F.3d at 1352 (noting that defibrillation delivers "relatively high power shocks").

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these modes of operation,[185] but in some settings, an ICD unit might be used for defibrillation only.[186]

At the outset of the litigation, in 1997, Cardiac asserted "numerous claims under four patents relating to implantable cardiac defibrillators."[187] By the time the case reached the Federal Circuit for the fourth time in 2009, however, only a single claim, claim 4 of U.S. Patent No. 4,407,288 ("'288 patent"),[188] remained at issue.[189] This claim was drafted in dependent form,[190] referencing claim 1, and read as follows: "4. The method of claim 1, wherein said at least one mode of operation of said implantable heart stimulator includes cardioversion."[191] For this method claim,[192] Cardiac had to proceed on inducement and contributory infringement theories, arguing that directly infringing acts required for liability[193] occurred when physicians who bought ICDs from St. Jude performed the patented method: "[Cardiac] emphasizes that all of St. Jude's devices were capable of executing [infringing] cardioversion

185. *See supra* text accompanying note 180 (noting that "ICD" can stand for "implantable cardioverter defibrillator").

186. *Cf. Cardiac II*, 576 F.3d at 1352.

187. Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 418 F. Supp. 2d 1021, 1023 (S.D. Ind. 2006) ("Cardiac I"), *aff'd in part, rev'd in part*, *Cardiac II*, 576 F.3d 1348 (Fed. Cir. 2009).

188. *See* U.S. Patent No. 4,407,288 col. 21, ll. 30–33 (filed Mar. 16, 1981) (issued Oct. 4, 1983).

189. Cardiac abandoned some of the claims early in the litigation and decided not to appeal unfavorable judgments on some of the other initially asserted claims. *See Cardiac I*, 418 F. Supp. 2d at 1026.

190. *See* 35 U.S.C. § 112 ¶ 4 (2006) ("[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.").

191. '288 Patent, col. 21, ll. 30–33. The "parent" claim, claim 1, recites:

> 1. A method of heart stimulation using an implantable heart stimulator capable of detecting a plurality of arrhythmias and capable of being programmed to undergo a single or multi-mode operation to treat a detected arrhythmia, corresponding to said mode of operation the method comprising the steps of:
>
> (a) determining a condition of the heart from among a plurality of conditions of the heart;
>
> (b) selecting at least one mode of operation of the implantable heart stimulator which operation includes a unique sequence of events corresponding to said determined condition; and
>
> (c) executing said at least one mode of operation of said implantable heart stimulator thereby to treat said determined heart condition.

Id. col. 21, ll. 9–23.

192. See *supra* notes 52–53 for an explanation of the difference between method and apparatus claims. One of the claims abandoned by the plaintiff during the twists and turns of this litigation was claim 13 of the '288 patent, an apparatus claim. *See Cardiac I*, 418 F. Supp. 2d at 1039. If the apparatus claim remained in the case, St. Jude might have become directly liable to Cardiac by making and selling ICD units capable of performing cardioversion, and an indirect infringement theory would have been unnecessary.

193. *See supra* Part II.A.

therapy, and . . . contends that St. Jude even instructed physicians how to program its devices to execute this therapy."[194]

On appeal, the Federal Circuit reviewed Cardiac's challenges to various aspects of the district court's judgment, including its grant of St. Jude's "Motion for Summary Judgment Limiting [Cardiac's] Damages"[195] for infringement of claim 4. The court's decision in *Cardiac Pacemakers* is best known for its en banc portion, which addressed a different problem.[196] Yet the panel part of the opinion that (among other things) affirmed the district court's summary judgment order limiting damages,[197] to which I now turn, also raised some very interesting questions.

2. Limitation of Damages

The record showed that St. Jude's ICDs had to be programmed by end users in order to perform cardioversion.[198] Indeed, many physicians used the ICDs for applications that were more common than cardioversion, such as defibrillation and another procedure called cardiac pacing, and either never programmed the devices to perform cardioversion[199] or did so but never actually utilized the devices to stimulate the heart by that technique.[200] Based on these facts, the district court held that, "[a]s a matter of law, [Cardiac's] damages for infringement of Claim 4 of the '288 patent are limited to only those devices that can be shown to have executed the claimed method of cardioversion during the relevant infringement period."[201] In a short section, the Federal Circuit affirmed

194. *Cardiac I*, 418 F. Supp. 2d at 1040; *see also supra* Part II.C (providing instructions to end users to utilize the device in an infringing manner can be sufficient actus reus for inducement liability).

195. *Cardiac I*, 418 F. Supp. 2d at 1039–44.

196. The proper interpretation of 35 U.S.C. § 271(f), which governs secondary liability for inducing or contributing to infringing acts performed overseas, was the central issue on appeal. The Federal Circuit addressed that issue, which is beyond the scope of this Article, in the en banc part of the opinion (section C.2). The court discussed the issue of damages for inducing infringement within the United States in a separate section, C.1., which was not decided en banc. This Article focuses on section C.1 of the *Cardiac Pacemakers* opinion. For a brief discussion of the extraterritorial dimensions of the atomistic approach, see *infra* text accompanying note 348.

197. Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1358–59 (Fed. Cir. 2009) ("Cardiac II").

198. *Cardiac I*, 418 F. Supp. 2d at 1039–42.

199. *Id.* at 1040 ("St. Jude has presented evidence that a number of its devices implanted during the relevant infringement period were programmed by implanting physicians to 'DEFIB ONLY' mode, making them incapable of executing a separate 'cardioversion' therapy unless and until they were reprogrammed.").

200. *Id.* at 1039 ("St. Jude contends that the method claimed in Claim 4 was not practiced in a large number of its ICDs.").

201. *Id.* at 1042.

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this portion of the district court's decision: In calculating "royalties on its patented method[,] . . . . Cardiac can only receive infringement damages on those devices that actually performed the patented method."[202] As I explain below, this approach is misguided because it conflates infringement liability analysis with the damages analysis.

Because the Federal Circuit's discussion of this issue was quite abbreviated, the district court's approach requires further explication. The district court cited its own earlier opinion in the *Cardiac Pacemakers* case for the proposition that, "[t]o hold St. Jude liable for infringement on this method claim . . . [Cardiac] was required to come forward with some evidence of actual use of the infringing method by someone."[203] That ruling, however, was a judgment of no liability due to lack of proof of underlying direct infringement, and not a grant of a motion to limit damages.[204] The court's confusion between issues of liability and damages becomes apparent when one examines *Joy Technologies, Inc. v. Flakt, Inc.*,[205] a case that it relied upon to support the "some evidence of actual use" proposition.[206] *Joy Technologies* held that sales of a device capable of performing an infringing method do not result in liability, direct or indirect, unless the method is performed by someone during the term of the patent.[207] That case, however, said nothing about limiting damages as a matter of law once the threshold finding of direct infringement was made.[208] The Federal Circuit approved the district court's reliance on *Joy Technologies*[209] even though it was easily distinguishable because *no indirect infringement liability at all* was found in that case.

The district court's choice of language, "cannot be held liable"[210] rather than "does not owe damages," is notable—it suggests an atomistic, particularized conception of indirect liability. Even though all the ICDs may be exactly the same, liability formally runs to the defendant via each particular ICD unit, so that the plaintiff must prove direct infringement for

202. *Cardiac II*, 576 F.3d at 1359.

203. *Cardiac I*, 418 F. Supp. 2d at 1040 (quoting Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., No. 1:96-CV-1718-DFH-TAB, 2002 WL 1801525, at *29 (S.D. Ind. July 5, 2002)).

204. *Cardiac*, 2002 WL 1801525, at *29.

205. 6 F.3d 770 (Fed. Cir. 1993).

206. *Cardiac I*, 418 F. Supp. 2d at 1040 (citing *Joy Techs.*, 6 F.3d at 773–75 (Fed. Cir. 1993)).

207. *Joy Techs.*, 6 F.3d at 775.

208. The *Joy Technologies* court did say that there could not be infringement "with respect to that plant," suggesting a somewhat atomistic conception of liability. *Id.* Under the facts of that case, however, there was no infringement found for any of the plants sold.

209. *See* Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1359 (Fed. Cir. 2009) ("Cardiac II").

210. *Cardiac I*, 418 F. Supp. 2d at 1040.

each ICD in order to establish indirect infringement liability (and therefore be entitled to collect damages) *for that unit*. In other words, although Cardiac showed that some units have been used to practice the infringing method, it was barred as a matter of law from basing the royalty on all the ICDs that St. Jude sold in the absence of proof that each unit was used to perform the claimed method at least once.[211] Summing up its atomistic approach, the district court stated that even though "all of St. Jude's devices were capable of executing cardioversion therapy, and [Cardiac] contends that St. Jude even instructed physicians how to program its devices to execute this therapy[,] . . . . [n]one of these facts are sufficient to impose liability (and therefore damages) for every device sold."[212] This is tort law's imputation formalism at work.

It bears repeating that "devices that actually performed the patented method"[213] of cardioversion are not qualitatively or intrinsically different from the devices that were not used to carry out the method. ICDs sold by St. Jude were identical units of the same kind of device, which were all capable of carrying out the cardioversion procedure. The district court elided this issue, and further conflated liability and damages, when it relied on *Standard Havens Products, Inc. v. Gencor Industries, Inc.*[214] The court correctly characterized *Standard Havens* as holding that "method claims [were] not directly infringed by the mere sale of an apparatus capable of performing the claimed process,"[215] but it did not appreciate that this case was not quite on point. The accused devices at issue in *Standard Havens* were asphalt plants that were used by the defendant's customers to infringe a patented "method for continuously producing an asphaltic composition from asphalt and aggregates," the so-called "counterflow" method.[216] Three of the ten plants sold by the defendant, however, ran on another method, called the "parallel flow" method.[217] The parallel flow plants were different from the counterflow plants. Not only

211. This requirement, however, does not have to translate into individualized proof of infringement for every unit of the device sold. *Cf.* Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 1 F. App'x 879, 884 (Fed. Cir. 2001) (nonprecedential) ("We do not imply that [the plaintiff] is required to demonstrate a one-to-one correspondence between units sold and directly infringing customers. Proof of inducing infringement or direct infringement may be shown by circumstantial evidence."); *see also supra* text accompanying notes 159–60.

212. *Cardiac I*, 418 F. Supp. 2d at 1040–41.

213. *Cardiac II*, 576 F.3d at 1359; *see also supra* text accompanying note 202.

214. 953 F.2d 1360 (Fed. Cir. 1991).

215. *Cardiac I*, 418 F. Supp. 2d at 1040 (quoting a characterization of *Standard Havens* from *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*, No. 1:96-CV-1718-DFH-TAB, 2002 WL 1801525, at *29 (S.D. Ind. July 5, 2002)).

216. *Standard Havens*, 953 F.2d at 1364–65, 1373.

217. *Id.* at 1373–74.

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were the parallel flow plants never used in an infringing manner, but they were not even capable of infringing because they utilized a completely different mode of operation.[218] The theory of "limitation of damages" in *Standard Havens* is wholly unremarkable: if I sue someone for indirect infringement arising from the use of device A, it generally makes no sense for me to collect damages from the use of an unrelated device B—which cannot be used in such a way as to perform the claimed method.[219] The Federal Circuit in *Standard Havens* correctly held that sales of the B devices should be subtracted from the award of damages.[220]

Perhaps one way to extend *Standard Havens* to the facts of *Cardiac Pacemakers* is to argue that a device that is never programmed to execute cardioversion is different in kind from one that is so programmed—similar to the A/B distinction above. The district court did attempt to cast the issues in this light by explaining "the distinction between all devices sometimes practicing the patented method and the very different situation of some devices never practicing the patented method."[221] But since all the devices in question are merely units of the same ICD, *Standard Havens* does not appear to support limiting damages as a matter of law to only those units that were used to perform the claimed method.[222] The district

218. *Id.*

219. Under some circumstances, however, damages for "convoyed" sales of unpatented items, along with damages for the patented items, can be properly assessed. *See infra* Part V.A.3.

220. *See Standard Havens*, 953 F.2d at 1374.

221. Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 418 F. Supp. 2d 1021, 1042 (S.D. Ind. 2006) ("Cardiac I"), *aff'd in part, rev'd in part*, Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1359 (Fed. Cir. 2009) ("Cardiac II").

222. This point deserves additional explication. By itself, mere capability of infringement is not enough to justify including a noninfringing unit in the royalty base. Taking *Lucent* as an example, the fact that every personal computer is in principle capable of performing the patented date-picker function of Outlook (if the Outlook software were to be installed) cannot possibly lead to the conclusion that all the PCs in the universe are the proper royalty base for damages in that case. (I thank Professor Mark Lemley for providing this example.) If the damages in *Lucent* were analyzed on the basis of a running rather than a lump-sum royalty, the proper royalty base would likely be every *Outlook software package* sold, not every PC sold. At first blush, if an ICD is analogized to a PC, it might not make sense to include every ICD in the royalty base because it is merely capable of performing cardioversion.

The crucial difference between computers and ICDs, however, is the limited number of functions the latter has. Indeed, the main modes of ICD operation are defibrillation, cardioversion, cardiac pacing, and perhaps a few other ways of stimulating the heart. *See Cardiac II*, 576 F.3d at 1359. The device itself is sometimes simply called a cardioverter defibrillator, underscoring the importance of these two specific functions. *See supra* note 180. In contrast, the PC is a device with many uses. It is normally not called "a device for running Outlook," though it might seem that way for some of us! Moreover, one needs to purchase a separate item (software) to make a computer run Outlook, while ICDs are typically sold with the inherent capability of being operated in defibrillation and cardioversion modes.

court never answered the key question: was there really no genuine issue of material fact *that the parties would not have based a license to practice the cardioversion method on the sales of all ICD units, regardless of whether medical professionals ever used them to perform cardioversion (or ever programmed them to perform cardioversion)*?

Moreover, the district court ignored another crucial fact. The disputed royalty base in *Standard Havens* consisted of ten units—they were asphalt plants!—and one might imagine that parties to a negotiation in that case might have logically based the royalty on actual use given the small number of potentially infringing items. In contrast, the royalty for the cardioversion claim would have likely been based on each ICD sale rather than on usage, which would be very costly to monitor given that St. Jude sells tens of thousands of ICDs every year.[223] It is thus a stretch to say that *Standard Havens* compels the result that the defendant "cannot be held liable for infringement of Claim 4 on a device that was not programmed to execute the claimed method of cardioversion."[224] It is even more of a stretch to argue that *Standard Havens* supports the conclusion that the plaintiff cannot collect damages on those devices that were so programmed but have not "executed the claimed method of cardioversion."[225] The Federal Circuit's opinion says nothing about these problems in the district court's reasoning.

3. *Tension with* Lucent

The tension between the *Cardiac Pacemakers* and *Lucent* approaches should by now be apparent. What is important is not only the difference in the result—the court limited damages as a matter of law to directly infringing devices in *Cardiac Pacemakers*, but refused to do so in

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What does this all mean for the royalty base? Parties who are negotiating a hypothetical license for the cardioversion claim might logically base the royalty on the sales of all ICD units (with the expectation that they might be programmed to cardiovert), just as parties negotiating over the date-picker claims might logically base the royalty on the sales of all Outlook packages (with the expectation that consumers would install the software and use the feature).

223. A (very rough) back-of-the envelope calculation suggests that St. Jude sold about 40,000 defibrillators in 2011 alone. *See* Anjali Athavaley, *Update: St Jude's Profit Falls as Heart-Rhythm Sales Decline*, WALL ST. J. (Jan. 25, 2012, 11:09 AM), http://online.wsj.com/article/BT-CO-20120125-710904.html (noting that St. Jude's domestic ICD sales fell thirteen percent to $237 million in the fourth quarter of 2011). These numbers led me to assume an average sales revenue of about $250 million per quarter, and I used the price of roughly $25,000 for an average defibrillator. *See, e.g.*, Mark A. Hlatky & Daniel B. Mark, *The High Cost of Implantable Defibrillators*, 28 EUR. HEART. J. 388, 389 (2007).

224. *Cardiac I*, 418 F. Supp. 2d at 1040.

225. *Id.* at 1040, 1042.

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Lucent[226]—but the respective analytic approaches. In considering the defendants' arguments for limiting damages as a matter of law, the Federal Circuit in *Lucent* asked how parties to a hypothetical licensing negotiation would have accounted for the consumers' use of the claimed invention, and decided that, given customary licensing practices, actual use would not decisively limit damages.[227] License agreements—even those involving method claims—are frequently based on sales of products capable of performing the method.[228] To put it simply, if a customer buys a box of Outlook software but does not install it, and thus never practices the patented date-picker method, Microsoft would still owe Lucent a payment if the license agreement called for a royalty on every box sold.[229]

Perhaps, license terms for performing cardioversion on ICDs would have been quite different from the per-box royalty that appears likely for the hypothetical Outlook/date-picker patent license. It may be that royalty obligations for practicing a claim directed only to cardioversion would be triggered only when the ICD was programmed to carry out the procedure.[230] We do not know. What is remarkable about *Cardiac Pacemakers*, however, is that the opinions at both the district court and the Federal Circuit are *completely devoid* of any consideration of what the parties would have done had they been engaged in a negotiation. While *Lucent* warned that royalties are not always to be tied to actual use, and the extent of direct infringement is but one of the factors to be considered in royalty analysis, *Cardiac Pacemakers* removed the noninfringing units from the royalty calculation without any discussion of how the parties may have approached the hypothetical license agreement.

Specifically, *Lucent* suggested that the fact-finder might account for the absence of directly infringing use of some units by arriving at a low royalty rate, so long as this information accurately reflected the parties' ex

226. *See also* Lucent Techs., Inc. v. Microsoft Corp., No. 07-CV-2000-H(CAB), 2011 WL 7664416, at *7–8 (S.D. Cal. June 16, 2011), *on remand from* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301 (Fed. Cir. 2009).

227. *See also infra* Part V.A.2.

228. *See, e.g.*, *Sample Business Contracts*: *Patent License and Royalty Agreement*, ONECLE, http://contracts.onecle.com/occulogix/stock.lic.2004.10.25.shtml (last visited Jan. 11, 2014). This agreement is a license for U.S. Patent No. 6,245,058 (filed Oct. 23, 1998) (issued June 12, 2001) (claiming methods for treatment of ophthalmological diseases). Section 6 of the agreement provides that "Royalty Payments shall be non-refundable and be calculated and paid based upon Total Net Revenues that Licensee . . . receives from the bona fide *commercial sales of its Products* sold in reliance and dependence upon the validity of the Patent's claims." *Sample Business Contracts*, *supra* (emphasis added).

229. *Cf.* Riles v. Shell Exploration & Prod. Co., 298 F.3d 1302, 1313 (Fed. Cir. 2002) (vacating the damages award where an expert's models ignored the plaintiff's "established licensing practice").

230. *See supra* note 223 and accompanying text for an explanation why this is unlikely.

ante position that the patented method would not have been valued very highly.[231] *Cardiac Pacemakers*, in contrast, simply cut those noninfringing units out of the royalty base ex post without any analysis. Of course, the two approaches might arrive at the same result if the fact-finder using the *Cardiac Pacemakers* approach realizes that excising noninfringing units out of the royalty base might result in an unrealistic negotiation, and increases the royalty rate to make up for the reduced royalty base.[232] The *Cardiac Pacemakers* opinions, both at the district court and at the Federal Circuit, do not even begin to consider this problem.

On remand in *Lucent*, Microsoft sought to apply *Cardiac Pacemakers* in its renewed attempt to limit damages "to only those instances where the claimed method is actually practiced"[233] by including in the damages calculation only the "devices performing the patented method."[234] While the district court needed only to say that the *Lucent* panel opinion governed as the law of the case, it attempted to distinguish *Lucent* from *Cardiac Pacemakers*:

> Typically, damages can only be assessed on devices that perform the actual method. [Citing *Cardiac Pacemakers*.] In *Lucent*, the Court noted that Lucent had the burden to prove that its lump sum damages award was supported by the extent the infringing method was actually used. . . . On the other hand, the Federal Circuit in *Lucent* did not limit the consideration to only proven instances of infringement *by direct testimony*. The *Lucent* court specifically rejected Microsoft's argument that "for method claims, [precedent] . . . requires that damages be limited to the proven number of instances of actual infringing use."[235]

As previously discussed, *Lucent*'s "direct evidence" language, referred to by the district court as "direct testimony," is a red herring.[236] As the district court recognized by citing the Federal Circuit's rejection of Microsoft's "proven number of instances" argument, *Lucent* was not about circumstantial versus direct evidence. Instead, *Lucent* was about not tying

231. *See supra* note 175 and accompanying text.

232. This approach may be prone to error, however. *See infra* Part V.A.1.

233. Lucent Techs., Inc. v. Microsoft Corp., No. 07-CV-2000-H(CAB), 2011 WL 7664416, at *7 (S.D. Cal. June 16, 2011), *on remand from* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301 (Fed. Cir. 2009).

234. *Id.*

235. *Id.* (citing Dynacore Holdings Corp. v. U.S. Philips Corp., 363 F.3d 1263 (Fed. Cir. 2004)) (emphasis added) (other citation omitted).

236. *See also supra* text accompanying notes 159–60.

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indirect infringement damages rigidly to the number of instances of directly infringing use.[237] Furthermore, the district court understood that the hypothetical negotiation approach must take the realities of licensing practice into account, noting that "the administrative cost of monitoring use could be expensive and that for some inventions, value is added by simply having the patented feature available for use."[238] This view simply does not fit with the atomistic approach of *Cardiac Pacemakers*.[239]

Instead of conceding that *Lucent* and *Cardiac Pacemakers* are probably not reconcilable, the district court subtly attempted to distinguish the two cases. It stated that "while damages do not have to be strictly tied to their usage numbers *in a lump sum payment*, Lucent must correlate its damage numbers to that usage."[240] But, as explained above, the *Lucent* opinion was not limited to lump-sum reasonable royalties.[241] The phrase "lump sum" is not mentioned a single time in the Federal Circuit's discussion of *Georgia-Pacific*'s eleventh factor ("extent to which the infringer has made use of the invention"), which is the section on which the district court relied to reject Microsoft's argument for limiting damages.

To my knowledge, the Federal Circuit is yet to acknowledge this intra-circuit conflict. While, as the earlier of the two decisions, *Cardiac Pacemakers* should control,[242] an argument can be made that the rule of *Cardiac Pacemakers* itself contradicts established precedent, as it is inconsistent with the Federal Circuit's earlier damages cases.[243] Moreover, as I demonstrate in the next Part, *Lucent* represents better policy.

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237. Presumably, both the number of direct infringers and the frequency with which the direct infringers use the product in an infringing manner would be subsumed in this "extent of infringing use" analysis. *See infra* note 278 and accompanying text.

238. *Lucent*, 2011 WL 7664416, at *8 (citing Lucent Techs., Inc. v. Gateway Inc., 580 F.3d 1301, 1334 (Fed. Cir. 2009)).

239. *See* Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1358 (Fed. Cir. 2009) ("[T]he district court was . . . correct in limiting damages to sales of ICDs that performed the steps of the claimed method.").

240. *Lucent*, 2011 WL 7664416, at *8 (emphasis added).

241. *See supra* text accompanying notes 164–71.

242. *See* Newell Cos., Inc. v. Kenney Mfg. Co., 864 F.2d 757, 765 (Fed. Cir. 1988) ("[P]rior decisions of a panel of the court are binding precedent on subsequent panels unless and until overturned *in banc*."); Atl. Thermoplastics Co. v. Faytex Corp., 974 F.2d 1279, 1281 (Fed. Cir. 1992) (Rich, J., dissenting from the denial of rehearing en banc) ("[W]here there are *conflicting* [panel] precedents, the *earlier* precedent controls.").

243. *See infra* Part V.A.2.

V. EVALUATING THE EVIDENTIARY AND ATOMISTIC APPROACHES

The atomistic approach to damages for secondary patent infringement is derived from the tort law principle of imputing the acts of a direct tortfeasor onto the inducer.[244] The very word "secondary" implies that the defendant's liability is dependent on another's primary tort.[245] Logically, then, if there is no primary act for which someone can be held liable, there is no secondary liability that could be associated with this act.[246] This tort law principle, unstated in the *Cardiac Pacemakers* opinion, allowed the district court (and the Federal Circuit) to use precedents implicating *liability* for direct infringement of method claims to resolve *damages* issues. Both courts determined that, for every instance (i.e., for every unit of the accused device) where direct infringement could not be shown, the plaintiff could not collect damages.[247]

Lucent's evidentiary approach presents something of a counterpoint to the traditional tort law view of indirect liability, though the *Lucent* court, too, left some important assumptions unstated and did not make clear why it refused to rely on tort law's imputation principle. In the sections that follow, I explain why *Lucent* represents the better view. The *Lucent* approach fosters greater accuracy in the damages calculus and is more consistent with general patent damages principles than *Cardiac Pacemakers*. Considerations of procedure, policy, and tort theory as properly applied to patent law also support the *Lucent* view.

A. Pragmatic Reasons for Adopting the Evidentiary Approach

1. The Atomistic Approach Is More Likely To Lead to Error and Confusion

There is a simple rejoinder to my criticism of *Cardiac Pacemakers*. Suppose that the district court was wrong to excise from the royalty base,

244. *See supra* text accompanying notes 141–42.

245. *See supra* note 2 and accompanying text.

246. *See* Limelight Networks, Inc. v. Akamai Techs., Inc., 134 S. Ct. 2111, 2014 WL 2440535, at *4 (2014).

247. *See* Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1358–59 (Fed. Cir. 2009); *see also* Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770 (Fed. Cir. 1993). It is telling that subsequent decisions have used the damages section of *Cardiac Pacemakers* not for its specific damages holding, but for the more general, uncontroversial proposition that a method claim cannot be infringed by a device merely capable of performing the method. *See, e.g.*, Cyberfone Sys., LLC v. Cellco P'ship, No. 11-827-SLR, 2012 WL 1509504, at *4 n.7 (D. Del. Apr. 30, 2012) ("'The law is unequivocal that the sale of equipment to perform a process is not a sale of the process' *within the meaning of section 271(a)*.") (quoting *Cardiac Pacemakers*, 576 F.3d at 1359) (emphasis added).

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in the summary judgment posture, those ICD units that were never used to carry out cardioversion because parties to a licensing negotiation would have based royalties on sales of the devices and not on whether the claimed method was in fact executed. So what? Can't the fact-finder just fix this problem by raising the royalty rate so that the end result—(unrealistically high) royalty rate multiplied by the (unrealistically low) royalty base is the same as the (realistic) royalty rate multiplied by the (realistic) royalty base? My choice of the words "realistic" and "unrealistic" gives away which method I prefer, but if the courts are paying attention to what is going on, does it really matter if the number of units in the royalty base is reduced in contravention to what parties do in real-life negotiations? A district court addressed this point in *Oak Industries, Inc. v. Zenith Electronics Corp*.[248] For reasons similar to *Cardiac Pacemakers*, it held that plaintiffs cannot collect damages on device units that were not shown to infringe, but added a cautionary note:

> Plaintiffs argue that royalties in negotiated licenses were based on the number of converters capable of infringing, rather than on the number that would infringe, because of the difficulty in determining how many converters would infringe the [claimed] method. Plaintiffs claim that we should look to these earlier licenses for guidance to any damage award. Plaintiffs confuse the license terms, which are not binding on courts, with the calculation of a reasonable royalty. These licenses may be evidence of a reasonable royalty but cannot substitute for evidence of the number of infringed converters. *We do note, however, that because these negotiated licenses are based on the number of infringing capable converters, the royalty rate may not be applicable to a situation of calculating a reasonable royalty on infringing converters*.[249]

I commend the *Zenith* court for realizing that, once it reduced the number of units in the royalty base in the summary judgment posture, the royalty rate put in evidence for license agreements based on units that are "infringing capable" could no longer be trusted. But it seems to me that, based on its own analysis, *Zenith*'s reasoning is exactly backwards. If the court believed that extant negotiated licenses are good evidence of the reasonable royalty rate, why not use that rate along with the realistic royalty base of units that are "infringing capable"? Why create the extra

248. 726 F. Supp. 1525 (N.D. Ill. 1989).
249. *Id.* at 1544 (emphasis added) (footnote and citations omitted).

http://openscholarship.wustl.edu/law_lawreview/vol91/iss4/3

problem of having to adjust the royalty rate to account for the unrealistic situation where royalties are only paid out on units actually used to infringe?[250]

There are already enough counterfactual elements inherent in the reasonable royalty calculation—for example, the royalty must be based on the assumption that the parties would have treated the patent as valid and infringed.[251] Why create more complications with yet another adjustment, for which it might be difficult to find any reality-based signposts? The *Zenith* court, it seems, chose the route of potentially sacrificing accuracy on the altar of formalistic adherence to tort law principles. Clearly, the royalty rate that the parties would have negotiated depends on their assumptions about what has to be licensed. If the evidence supports the conclusion that the parties would have licensed "infringing capable" units, it stands to reason for the fact-finder to use them, rather than actually infringing units, as the royalty base.

The *Zenith* court believed that the result it reached was compelled by § 284 of the Patent Act. It relied on the language that "[t]he court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty *for the use of the invention by the infringer*," and reasoned that "[p]laintiffs' interpretation [of including units that are merely 'infringing capable' in the royalty base] would impose liability on [the defendant] for non-infringing use."[252] But this approach is not preordained by statute. If one views damages for indirect infringement holistically as a hypothetical royalty to be paid by the inducer to the patentee, rather than atomistically as a set of discrete instances of compensating the patentee for each directly infringing act, inclusion of "infringing capable" units in the royalty base fits comfortably within the meaning of § 284. Indeed, nothing in the statute prohibits fact-finders from calculating the "reasonable royalty for the use of the invention" by basing it on the number of all "infringing capable" units as long as the evidence supports the conclusion that the parties would have actually used these units as the base in their royalty agreement.[253] As I

250. Moreover, recent Federal Circuit decisions have generally frowned upon the practice of correcting errors in the royalty base by adjusting the royalty rate. *See* Laserdynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 67 (Fed. Cir. 2012); Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292, 1319–20 (Fed. Cir. 2011).

251. *See supra* text accompanying note 123.

252. *Oak Indus.*, 726 F. Supp. at 1543 (quoting 35 U.S.C. § 284 (1988)).

253. *Cf.* Engel Indus., Inc. v. Lockformer Co., 96 F.3d 1398, 1408 (Fed. Cir. 1996) ("[R]oyalties [in real-world license agreements] may be based on unpatented components if that provides a convenient means for measuring the value of the license.") (citing Automatic Radio Mfg. Co. v.

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argue further below, this approach does not mean that the plaintiff is somehow being compensated for noninfringing conduct.[254]

The problem, moreover, is that not all courts may be as attentive as the *Zenith* court to the issue of royalty adjustment. For example, neither the district court nor the Federal Circuit opinions in *Cardiac Pacemakers* flagged this issue, raising the possibility that the plaintiff would have been undercompensated if the damages award were to be based on a royalty rate that was incompatible with the "adjusted" royalty base.[255] Thus, grants of motions to limit damages as a matter of law in this context invite reliance on the wrong the royalty rate and introduce thorny evidentiary problems.

2. *The Atomistic Approach Is in Tension with the Ex Ante* Georgia-Pacific *Hypothetical Negotiation Framework*

This brings me to my next point. In direct infringement cases, the courts have made it clear that reasonable royalty damages are not always tied to the extent of directly infringing use. Indeed, overvaluing (or undervaluing) actual use of the claimed invention may introduce a hindsight bias that distracts the fact-finder from the task of intuiting the parties' position at the time of the first instance of infringement.[256]

Hazeltine Research, Inc., 339 U.S. 827 (1950) and Zenith Radio Corp. v. Hazeltine Research, Inc., 395 U.S. 100, 138 (1969)); Damien Geradin & Anne Layne-Farrar, *Patent Value Apportionment Rules for Complex, Multi-Patent Products*, 27 SANTA CLARA COMPUTER & HIGH TECH. L.J. 763, 776–77 (2011) ("[T]he base on which royalties are calculated must be objective and workable. . . . [T]he average selling price of the product containing the patented feature offers the greatest clarity, as those prices often will be observable in public documents. . . . [P]ractical concerns such as proper reporting do matter and must be considered in the apportionment debate [for setting a proper royalty base]."); *see also* Thomas F. Cotter, *Four Principles for Calculating Reasonable Royalties in Patent Infringement Litigation*, 27 SANTA CLARA COMPUTER & HIGH TECH. L.J. 725, 751 (2011) ("Parties sometimes do choose sales revenue from sales of the end product as the royalty base, after all, as a matter of convenience; in such a case, there is no particular reason to avoid using such a base as long as it is accompanied by an appropriate rate."). Cotter goes on to argue that, in *Lucent*, it was commercially unreasonable to have set the royalty at the price of an Outlook package, but does not suggest an alternative royalty base. *Id.* at 751–52. *Cf.* Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1339 (Fed. Cir. 2009) ("The license agreements admitted into evidence . . . highlight how sophisticated parties routinely enter into license agreements that base the value of the patented inventions as a percentage of the commercial products' sales price.").

254. *See infra* Part V.B.2.

255. *See supra* text accompanying notes 230–32. The case settled after the Federal Circuit's 2009 opinion. *See* Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., No. 1:96-CV-1718-DFH/TAB, 2010 WL 2696006 (S.D. Ind. May 5, 2010).

256. *See* Omri Ben-Shahar, *Damages for Unlicensed Use*, 78 U. CHI. L. REV. 7, 14 (2011) ("The ex ante measure is estimated as the hypothetical royalties that the owner would have negotiated in a hypothetical license, had the infringer approached him and sought to secure a license. This hypothetical royalty measure is merely an educated guess—an average. It reflects the *expected value*

Consider *Hanson v. Alpine Valley Ski Area, Inc.*,[257] a case that *Lucent* cited in its discussion of damages.[258] In *Hanson*, the defendant infringed the method claims of a patent on "a method and apparatus for making snow used in winter sports"[259] when running its snowmaking machines. The special master in charge of calculating damages adopted the analysis of the expert witness for the plaintiff, who argued that "the licensor would have insisted on a uniform license based on the gallons-per-minute rated capacity of the Hanson-method machines, and *would have refused to grant a license based on actual use*."[260] The Federal Circuit agreed with the special master and rejected the defendant's contention that "the royalty should have been based upon actual use rather than upon estimated savings reflecting the snowmaking capacity of the machines."[261] Underscoring the fact-driven nature of the reasonable royalty inquiry, the court held that "the record contains substantial evidence that actual use of the snowmaking machinery would not have been the basis upon which a willing licensor and a willing licensee would have established the royalty."[262] It then articulated the intuition that actual use is not the be-all and end-all of royalty terms determined after a licensing negotiation:

> [A] royalty based upon actual use would have been inconsistent with the function snowmaking equipment serves at a ski resort and the reasonable needs and expectations of both the licensor and the licensee. A resort has snowmaking machinery to enable it to function at times when there is no or insufficient natural snow. . . . [I]n these circumstances the number of hours a machine is used is irrelevant; the desire is never to use the machine. The machine's utility simply does not depend upon its hours of operation.
>
> A royalty based on actual use would produce unsatisfactory results here for both the licensor and the licensee. If there were extensive snow during the season, there would be little use of the machine and the patentee would receive an inadequate return for the value of his invention. On the other hand, if there were little or no

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of the patent to both parties and their relative bargaining power, based on information that was available pre-infringement.") (emphasis in original) (footnote omitted).

257. 718 F.2d 1075 (Fed. Cir. 1983).

258. Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1333–34 (Fed. Cir. 2009).

259. *Hanson*, 718 F.2d at 1076.

260. *Id.* at 1079 (emphasis added).

261. *Id.* at 1080.

262. *Id.*

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> snow, the licensee would have to pay exceptionally large royalties.[263]

Perhaps, the fact that snow-making machines are a kind of an "insurance policy," not meant to be used when there's plenty of snow on the slopes, makes this case unusual.[264] But *Hanson*'s larger point, already discussed in the context of the *Lucent* case, is well-taken: when parties negotiate a license agreement, they may not always tie the royalty rate to the frequency with which the patented function is actually used.[265] Even when parties do take actual use into account, the value of the patented feature is estimated ex ante, and the extent of actual use may, or may not, closely track the pre-negotiation estimate.[266] An unthinking application of the atomistic approach would contaminate this analysis with ex post features. The correct method for calculating the royalty is one that is supported by the facts of the case and the custom of the industry at issue,[267] and direct infringement cases like *Hanson* demonstrate that actual usage cannot always serve as a strict limit on damages.

Although the ex post approach to limiting damages as a matter of law is, for obvious reasons, favored by defendants, the step of "going back in time" to simulate a hypothetical negotiation does not always have to benefit the patentee.[268] In *Integra Lifesciences I, Ltd. v. Merck KGaA*,[269] the Federal Circuit held that relying on the extent of actually infringing use of the patent would *overcompensate* the plaintiff because the invention was in very early stages of development at the time of first infringement, and the widespread demand for the patented technology could not

263. *Id.* (internal quotation marks and alterations omitted).

264. It has been suggested that *Hanson* stands for the specific proposition that "reasonable royalty damages, even determined by the *Georgia-Pacific* approach, do not necessarily require the setting of a royalty rate that is applied to sales," and the damages analysis may instead be focused on cost savings to the infringer as a measure of damages. *See Methodologies for Determining Reasonable Royalty Damages*, FISH & RICHARDSON, http://www.fr.com/reasonableroyalty (last visited Jan. 11, 2014). Along with the *Lucent* court, however, I use the *Hanson* case for the more general proposition that a reasonable royalty would rarely be exclusively based on the extent of directly infringing use, since that is after all only one of the *Georgia-Pacific* factors. *See supra* text accompanying notes 163–67.

265. *See supra* text accompanying notes 227–30.

266. Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1334 (Fed. Cir. 2009).

267. *See* Stickle v. Heublein, Inc., 716 F.2d 1550, 1561 (Fed. Cir. 1983) (deciding that a lump sum rather than "actual use" reasonable royalty was appropriate because "qualified experts unequivocally testified that the *food processing industry* did not . . . utilize use royalties in connection with machines for producing food" and noting that the patentee "never offered anything other than a paid-up license for making and using the patented inventions") (emphasis added).

268. *See supra* text accompanying note 122.

269. 331 F.3d 860, 871 (Fed. Cir. 2003), *rev'd on other grounds*, 545 U.S. 193 (2005).

reasonably have been predicted or expected by the parties.[270] This view is consonant with basic contract principles, which hold that parties cannot repudiate a license because the claimed feature turned out to be more (or less) successful than expected.[271] Licensees (or licensors) may decide to commit an "efficient breach," but they would still be responsible for damages for violating the terms of the license.[272] The contract analogy makes sense for patent damages because, in contrast to many other torts, the legal rights of the plaintiff are defined in advance by claims over which a license could be negotiated.[273] The contractual mechanism of the royalty agreement enables the parties to agree upon the cost of invading these rights.[274]

Direct infringement cases discussed above cast serious doubt on approaches that would rigidly tie reasonable royalty damages to units actually used to infringe. Other than formalistic adherence to general tort law's imputation principle or specific facts that call for a license based on actual use as determined ex post,[275] there is no reason for the courts to depart from the approaches of *Hanson* and *Integra* in indirect infringement cases. The key, but ultimately irrelevant, difference between direct and indirect infringement when it comes to the "extent of infringing use" is this: In cases where liability is premised on the former, the extent has to do with how frequently the direct infringer uses a claimed feature, and in the

270. Interestingly, the position that Microsoft took at oral argument in *Lucent* on evidence of how frequently the Outlook users utilized the claimed feature appears inconsistent with its theory that damages must be limited as a matter of law to actually infringing uses. Microsoft maintained that "information about how often the date-picker tool has in fact been used by consumers of Microsoft products," which apparently was damaging to its case, was "irrelevant" because "such facts postdate the time of the hypothetical negotiation." *Lucent*, 580 F.3d at 1333. Based on the "book of wisdom" principle, the Federal Circuit emphatically rejected this argument: "[N]either precedent nor economic logic requires us to ignore information about how often a patented invention has been used by infringers. Nor could they since frequency of expected use and predicted value are related." *Id.*; *see also supra* text accompanying notes 120–21. Thus, post-negotiation events are *relevant* to the amount of damages, but they are not *decisive*. While, according to *Lucent*, damages should not be excised ex post for each Outlook unit that was not used to infringe, evidence of actual use helps the fact-finder to figure out how the parties would have valued the invention.

271. *See, e.g.*, ROGER E. SCHECHTER & JOHN R. THOMAS, PRINCIPLES OF PATENT LAW 367 (2d ed. 2004) ("General rules of contract law do not allow purchasers to repudiate their promises simply because they subsequently become dissatisfied with the deal, at least without compensating the other contracting party.").

272. *See* MARVIN A. CHIRELSTEIN, CONCEPTS AND CASE ANALYSIS IN THE LAW OF CONTRACTS 192 (6th ed. 2010) (illustrating the concept of efficient breach); *see also id.* at 86 ("[T]he promisor [may regard] it as less costly to pay damages than to meet its contract obligations unless the contract terms are modified.").

273. *See supra* text accompanying note 92.

274. In tort law, measurement of damages for property torts probably provides the closest analogy. *See supra* text accompanying notes 91–94.

275. *See supra* text accompanying notes 245–47.

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latter, two separate "frequency of use" layers can be discerned. The first is, how many end users of the indirect infringer's product employed it in an infringing manner at all (i.e., at least once), and the second is how many times those users actually performed the claimed method.[276] Both of these layers can, I think, be properly subsumed under the eleventh *Georgia-Pacific* factor—"the extent to which the infringer has made use of the invention"—and taken into account in setting a reasonable royalty.[277]

Again, it is helpful to consider what it is that the *Georgia-Pacific* factors are supposed to help the trier of fact to figure out. In an indirect infringement case like *Lucent*, it goes without saying that the fact-finder must determine the outcome of a hypothetical negotiation between the patentee and Microsoft, the indirect infringer, rather than having to divine the terms of individualized licenses between the patentee and each of Microsoft's customers.[278] Since it is likely that the agreement would have been based on the parties' mutual understanding regarding the *expected* extent of the claimed feature's utilization, rather than structured so as to monitor actual usage,[279] both types of "frequency of use" layers would be properly included in the ex ante estimate of the popularity of the date-picker feature. As long as the plaintiff can establish that a hypothetical negotiation would proceed in this manner,[280] the case, at the damages stage, becomes no different from a direct infringement case where the

276. The "atomization" issue can arise in direct infringement cases as well. For example, a (direct infringement) defendant can argue that it performs the claimed method only in some units of an accused device that it uses, while the other units are employed in a noninfringing way. Under this view, infringing use of each unit of the device represents a separate tort. An argument along these lines was made in, for example, *Inline Connection Corp. v. AOL Time Warner Inc.*, and rejected by the district court. 470 F. Supp. 2d 424 (D. Del. 2007). The court explained that "calculating a reasonable royalty is not merely a function of the number of infringing systems, other elements contribute to and influence the analysis." *Id.* at 434. I focus here on the atomistic approach in the context of indirect infringement for two reasons. First, damages-limiting arguments of the sort discussed in this Article have appeared to gain more traction in indirect, as opposed to direct, infringement cases. I am not aware of a Federal Circuit decision in a direct infringement case parallel to *Cardiac Pacemakers*—upholding a grant of summary judgment to limit damages to only those device units that have actually been used to infringe. Second, motions to limit damages in indirect infringement cases raise interesting issues involving a connection between primary and secondary liability not raised by direct infringement cases, perhaps making the atomistic approach easier to justify in the indirect infringement context.

277. Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970); *see also supra* text accompanying note 167.

278. *See supra* text accompanying note 142.

279. The point of monitoring use would be to ensure that no royalties are paid on software units that are never used in an infringing manner or to limit royalties when the licensee demonstrates that a feature is used rarely. *Cf. supra* notes 227–28 and accompanying text.

280. Of course, if the defendant can establish, at trial or at summary judgment, that the negotiation would not have proceeded in this manner, units could be properly excised from the royalty base. *See also infra* Part V.A.3.

extent of (expected) use is one of the many factors going into the reasonable royalty analysis. *Lucent*'s evidentiary approach thus mirrors the approach to damages generally taken in direct infringement cases, while *Cardiac Pacemakers*' atomistic approach unjustifiably departs from the hypothetical negotiation framework and creates a per se rule for determining reasonable royalty damages for indirect infringement.

3. The Evidentiary Approach Correctly Frames the Relevant Facts in Motions To Limit Damages as a Matter of Law

Some courts, in patent and non-patent cases, have refused to rule on damages motions before the determination of liability. A few judges have justified this position by the text of Rule 56 of the Federal Rules of Civil Procedure,[281] while others have held that granting such motions would be improvident and used their inherent powers to refuse to rule on them.[282] Moreover, one litigant has even (unsuccessfully) argued that, given the inherently fact-specific nature of the hypothetical negotiation analysis, a summary judgment ruling on damages violated the Seventh Amendment right to a jury trial.[283] Most courts have rightly rejected such arguments,[284]

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281. *See, e.g.*, Arado v. Gen. Fire Extinguisher Corp., 626 F. Supp. 506, 508–09 (N.D. Ill. 1985) ("Rules 56(a) and 56(b) [of the Federal Rules of Civil Procedure then in force] simply do not permit the piecemealing of a single claim or the type of issue-narrowing sought here," namely partial summary judgment to prevent plaintiff from collecting "compensatory, consequential and liquidated damages").

282. *See, e.g.*, Kendall McGaw Labs., Inc. v. Cmty. Mem. Hosp., 125 F.R.D. 420, 422 (D.N.J. 1989) ("A Rule 56 movant may not 'play leapfrog' with his case by seeking a decision whose validity depends on one or more unresolved issues. To allow another result would ignore the chronological structure of trial practice. . . . A different arrangement would run the law into conceptually-backward nonsense; damages do not bring forth liability any more than an injury produces a duty."); Hoffmann-La Roche Inc. v. Promega Corp., 33 U.S.P.Q.2d (BNA) 1641, 1649 (N.D. Cal. 1994) (denying as premature a motion for summary adjudication of patent damages, which was brought prior to determination of liability); *see also* Tyco Healthcare Grp. LP v. Biolitec, Inc., No. C-08-3129 MMC, 2010 WL 3324893 (N.D. Cal. Aug. 23, 2010) (similar).

283. Ball Aerosol & Specialty Container, Inc. v. Ltd. Brands, Inc., 553 F. Supp. 2d 939, 951 (N.D. Ill. 2008), *rev'd on other grounds*, 555 F.3d 984 (Fed. Cir. 2009) ("[P]recedent clearly establishes that the issue of patent damages can be resolved on summary judgment. . . . Defendants argue that the court's grant of summary judgment violated their Seventh Amendment right to a trial by jury. There is no Seventh Amendment right to a trial by jury when there is no genuine issue of material fact for trial. Summary judgment is appropriate in instances where it has been established by one of the parties that there is no genuine issue of material fact on which a jury could find for the losing party. Not only was summary judgment applicable to the patent damages issue on summary judgment, but the record established that no genuine issue of material fact existed on the issue of damages.") (internal citations omitted).

284. Indeed, the better and more widely accepted view is that motions for partial summary judgment on the measure of damages can be validly entertained under Rule 56. *See, e.g.*, Hamblin v. British Airways PLC, 717 F. Supp. 2d 303, 306–07 (E.D.N.Y. 2010) ("Some courts have limited the availability of summary judgment motions to foreclosure of specific claims, not remedies. . . .

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and judicial management of damages in patent cases is now well-established.[285] Nevertheless, although the courts can generally make rulings on damages before liability has been adjudicated, they should rarely grant motions to limit damages as a matter of law to proven instances of direct infringement in indirect infringement cases.[286] When the facts are properly framed, such motions will typically fail the standards for granting summary judgment or judgment as a matter of law.

Under the "evidentiary/atomistic" analytical framework developed in this Article, a grant of summary judgment (or judgment as a matter of law) to limit indirect infringement damages to proven instances of direct infringement is proper only if there is no factual dispute that the parties would have based the royalty on actual (rather than expected) usage of the technology covered by the asserted patents.[287] Even if the defendant offers uncontroverted proof that, say, customers used the date-picker feature in only sixty percent of Outlook software packages sold, the plaintiff could counter that this fact alone does not conclusively establish that the parties would have agreed that royalties *should not* be paid on the remaining forty percent.

Indeed, a grant of a motion to limit damages to actually infringing units effectively means that basing damages on actual use is the sole legally acceptable way to calculate the reasonable royalty on the facts of the case.

[However], I conclude that the word 'claim' in Rule 56 is not limited to the theory of liability that a plaintiff asserts. A theory of liability is useless to a plaintiff without remedies flowing from that claim, and so I see the 'claim' as being composed of both the theory of liability and the remedies that that theory supports."); Williams v. J.P. Morgan & Co., 199 F. Supp. 2d 189, 192–93 (S.D.N.Y. 2002); Highland Indus. Park, Inc. v. BEI Defense Sys. Co., 192 F. Supp. 2d 942, 944 (W.D. Ark. 2002).

285. *See supra* text accompanying note 46.

286. Besides summary judgment motions to limit damages, attempts to reduce the royalty base to only noninfringing units may be styled as motions *in limine* to exclude evidence. *See, e.g.*, Telcordia Techs., Inc. v. Lucent Techs. Inc., Nos. 04-875 GMS, 04-876 GMS, 2007 WL 7076662, at *1–2 (D. Del. Apr. 27, 2007); *see also* Honeywell Int'l, Inc. v. Hamilton Sundstrand Corp., 378 F. Supp. 2d 459, 463–70 (D. Del. 2005) (discussing exclusion of evidence of post-infringement sales projections). Damages issues of the sort discussed in this Article also appear in *Daubert* motions to exclude evidence under Rule 702 of the Federal Rules of Evidence. *See, e.g.*, Lucent Techs., Inc. v. Microsoft Corp., 837 F. Supp. 2d 1107, 1122–26 (S.D. Cal. 2011). When it comes to attempts to limit damages in the guise of evidentiary motions, we might be well-served to follow Judge O'Malley's remarks in *Landmark Screens, LLC v. Morgan, Lewis, & Bockius LLP*, with regard to issues presented during *in limine* motions that should be left for the fact-finder:

> While a trial judge always may conclude that no reasonable trier of fact could reach a different conclusion than he on questions presented in a motion *in limine*, that is not what the trial judge did here. Not once did he address what a reasonable juror might or might not conclude on the facts presented.

676 F.3d 1354, 1366 (Fed. Cir. 2012) (O'Malley, J., concurring).

287. *See* FED. R. CIV. P. 56(a) (summary judgment should be granted when there is "no genuine dispute as to any material fact and the movant entitled to a judgment as a matter of law").

This result implies that, as a matter of law, there must be a reason to prevent the plaintiff from establishing the reasonable royalty by, say, multiplying the number of units capable of infringing by the royalty rate on sales of such units in comparable license agreements, or from calculating it by some other method.[288] Under the *Georgia-Pacific* framework, it would be a tall order for a defendant to prove that all of the alternative approaches are legally untenable.[289] Although a case where there is no genuine dispute that a royalty calculation would be based on actual use is surely possible, I imagine that it is rare. For example, the facts of *Cardiac Pacemakers* do not support the conclusion that, as a matter of law, the damages base should include only infringing ICD units.

To sum up, in order to win on a motion to limit the royalty base, the defendant would need to show that the extent of directly infringing use would be the key factor in the hypothetical license negotiation—so important, in fact, that no reasonable jury could find that parties would have agreed to structure the license based on actual use. In the absence of such evidence, the defendant is left only to argue that damages on noninfringing units cannot be collected as a matter of law because its liability must be "atomized" into multiple acts of infringement by the direct infringer.[290] But, as explained earlier, this position is inconsistent with the hypothetical negotiation approach and is likely to lead to inaccurate results.[291]

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288. Other possibilities include basing the reasonable royalty primarily on cost savings to the defendant, Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1080–81 (Fed. Cir. 1983), or even comparing the method used with noninfringing alternatives in order to "estimat[e] the advantages conferred by the use of the patented technology." Monsanto Co. v. McFarling, 488 F.3d 973, 980 (Fed. Cir. 2007).

289. *Cf.* Inline Connection Corp. v. AOL Time Warner, Inc., 470 F. Supp. 2d 424, 431 (D. Del. 2007) (noting that summary judgment is improper when the "parties' experts use[d] different theories, data and reach[ed] different conclusions"); *see also* Minks v. Polaris Indus., Inc., 546 F.3d 1364, 1372 (Fed. Cir. 2008) ("A comparison of the *Georgia-Pacific* factors and the standard of a hypothetical negotiation to the evidence of record in this case makes clear that the district court's reduction of compensatory damages necessarily amounted to an assessment of the sufficiency of the evidence, and as such, the option of a new trial was required.").

290. *See supra* text accompanying notes 244–46.

291. *See supra* Parts V.A.1 & V.A.2.

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B. Theoretical Reasons for Adopting the Evidentiary Approach

1. Indirect Patent Infringement Is Different from Secondary Liability in Other Areas of Tort Law

The distinctive nature of indirect infringement in patent law militates against tying damages for this tort too closely to primary infringement. As discussed in the Introduction, secondary liability in intellectual property cases arises in factual scenarios that are quite different from their analogs in general tort law.[292] The ubiquitous pattern of a manufacturer-inducer knowingly providing technology that allows a large number of customers to invade the legal rights of the patentee[293] is a long way from "isolated acts of adolescents in rural society" that the Court of Appeals for the D.C. Circuit tellingly thought to be emblematic of general secondary civil liability.[294] Although the ultimate purpose of secondary liability is, of course, to compensate the patentee for harm from direct infringement,[295] in patent cases that harm often stems largely from the *indirect infringer*'s conduct.

Causation analysis helps justify the focus on the conduct of the indirect infringer in figuring a proper measure of damages and to explain why, among the intellectual property torts, such a focus is particularly appropriate in patent law. Stepping away from the framework of pure secondary liability[296] and adopting the language of primary tort,[297] one notes that the causal link between the acts of the inducer and the harm to the patentee is strong and direct.[298] To take *Lucent* as an example,

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292. *See supra* text accompanying notes 18–19.

293. *See supra* text accompanying notes 41–43.

294. *See* Halberstam v. Welch, 705 F.2d 472, 489 (D.C. Cir. 1983); *see also supra* text accompanying notes 16–17.

295. *See supra* text accompanying note 39.

296. By "pure" secondary liability, I have in mind a formulation that does not include the elements of proximate or but-for causation. *See, e.g.*, *supra* text accompanying note 63; *see also supra* Part II (formally, no causation element in establishing secondary patent infringement liability).

297. Incidentally, some courts require proof of a causation element to establish secondary liability in tort. *See, e.g.*, Bigio v. Coca-Cola Co., 675 F.3d 163, 173 (2d Cir. 2012) (stating the elements of secondary civil liability in Georgia: "(1) through improper action or wrongful conduct and without privilege, the defendant acted to procure a breach of the primary wrongdoer's duty to the plaintiff; (2) with knowledge that the primary wrongdoer owed the plaintiff a duty, the defendant acted purposely and with malice and the intent to injure; (3) the defendant's wrongful conduct procured a breach of the primary wrongdoer's duty; and (4) *the defendant's tortious conduct proximately caused damage to the plaintiff*") (quoting Insight Tech., Inc. v. FreightCheck, LLC, 633 S.E.2d 373, 379 (Ga. Ct. App. 2006)) (emphasis added) (alterations omitted).

298. *Cf.* Bartholomew & McArdle, *supra* note 35, at 698–704 (analyzing secondary civil liability in terms of causation and indicating that the courts do so as well); *see* Nathan Isaac Combs, Note, *Civil*

Microsoft knew (and likely expected—why else put in the date-picker feature and provide instructions on how to use it?) that Outlook users would click on the calendar,[299] and supplied the technology without which most users would have been unable to perform the patented method.[300] Microsoft's conduct was, thus, clearly a but-for cause of harm to the patentee, and the close connection between the conduct and the harm must mean that the proximate cause element was met as well.[301]

The causation issue can be analyzed in another way. Even though acts of direct infringement are surely expressions of independent human will, they can hardly be said to be "superseding causes" that break the chain of causation between the conduct of the inducer and harm to the patentee.[302] As far as Outlook users know, they are doing nothing wrong when they are using the date-picker feature, and indeed their operation of the software in a tortious manner is perfectly reasonable and expected.[303] The possibility of the direct infringement is a natural consequence of providing the Outlook software to the users, and it is eminently foreseeable.[304]

Aiding and Abetting Liability, 58 VAND. L. REV. 241, 292–99 (2005) (analyzing secondary liability in tort in terms of but-for cause, proximate cause, and foreseeability); *see also* Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L.J. 1, 4, 43–92 (2001) (arguing that patent infringement damages should follow the tort-law causation model, but without distinguishing direct and indirect infringement). *But see* Bartholomew, *supra* note 82, at 840–44 (calling inducement in copyright law "liability without causation"); *see also supra* Part II.C.

299. One of the fears of expansion of indirect liability is that legitimate commercial activity might unfairly become a target of an infringement suit. *See, e.g.*, Rantanen, *supra* note 74, at 1591 ("[I]ndirect infringement's ability to deter must be balanced against the possibility of over-imposing liability on those who participate in commerce."); *see also supra* text accompanying notes 31–32. However, the significant acts (i.e., selling the enabling technology and providing instructions to use it in an infringing manner) and elevated state of mind (i.e., knowledge of infringement of the patent) in many manufacturer-inducer cases create a tight causal link between the activities of the inducer and the harm to the patentee, which alleviates concerns about ensnaring legitimate commercial activity. *See also infra* text accompanying note 324.

300. It could be that Microsoft thought that Lucent's patents were invalid or that it did not infringe them. But that only clears Microsoft of willful infringement. *See* 35 U.S.C. § 284 (2006). The bottom line is that Microsoft was found liable in spite of what it believed, and the issue at the damages stage is the effect of Microsoft's conduct on the patent right.

301. *See* Bartholomew & McArdle, *supra* note 35, at 703–04.

302. *See* J.D. LEE & BARRY A. LINDAHL, MODERN TORT LAW § 4:07 (2d ed. 2002) ("[A] superseding cause is one that alters the natural sequence of events and produces results that would not otherwise have occurred. Or one that is of such an extraordinary nature or so attenuates defendant's negligence from the ultimate injury that responsibility for the injury may not be reasonably attributed to the defendant.") (footnotes omitted) (internal quotation marks omitted); *see also* RESTATEMENT (SECOND) OF TORTS § 440 (1965).

303. *See supra* text accompanying notes 24–28.

304. Of course, actual harm occurs only in cases where the claimed method is used. The focus on the indirect infringer's activity, however, helps explain why it may be unwise to *measure* the harm with the aid of the imputation formalism.

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The tight causal link between activities of the indirect infringer and the harmful conduct of the primary tortfeasors in patent cases calls to mind the tort of negligent entrustment.[305] Liability for this so-called "enabling tort" may lie when the tortfeasor negligently provides an instrumentality (often a car) to a person—usually someone of questionable reputation—who uses it to harm a victim.[306] Although inducement of infringement is thought to lack the moral blameworthiness of an enabling tort[307] and requires a different mens rea,[308] there are instructive parallels, and differences, between the two torts. In indirect patent infringement cases, the inducer provides an instrumentality that enables tortious acts to take place while on notice that a number of end users, regardless of their reputation or character, could utilize the instrumentality in an infringing manner. Besides, the end users do so in the course of its normal operation—not during a "joyride," as often happens in negligent entrustment cases.[309] In terms of the relative allocation of responsibility between the primary tortfeasor and the enabler, indirect patent infringement seems much worse than negligent entrustment because the directly infringing end user is typically clueless and blameless.[310]

Thus, given the close nexus between the acts of the inducer and the ultimate harm to the patentee, it is sensible to focus on those acts when determining the measure of damages caused by the direct infringements. This intuition, in turn, leads to the question of how much the inducer would pay the patentee for the right to provide the patented feature to the users rather than to approach the patentee's loss formally as a sum total of harms from discrete instances of direct infringement. The inducer was able to save on licensing, manufacturing, and design-around costs by including

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305. *See* RESTATEMENT (SECOND) OF TORTS § 308 (1965) ("It is negligence to permit a third person to use a thing or to engage in an activity which is under the control of the actor, *if the actor knows or should know that such person intends or is likely to use the thing or to conduct himself in the activity in such a manner as to create an unreasonable risk of harm to others*.") (emphasis added). Unlike inducement of infringement, which is a form of secondary liability, negligent entrustment is an independent tort. *See supra* note 2. Still, negligent entrustment is helpful for purposes of illustration.

306. *See, e.g.*, Vince v. Wilson, 561 A.2d 103, 105 (Vt. 1989) ("[C]ourts have allowed recovery against an automobile dealer who sold a vehicle to an inexperienced and incompetent driver whose driving injured several people when the seller knew or should have known of the incompetency.") (citing Johnson v. Casetta, 197 Cal. App. 2d 272 (1961)).

307. *See* Sherkow, *supra* note 19, at 26 ("Inducement . . . is not a moral device but a tool concerned with providing economic recovery against 'upstream' infringers."). *But cf.* Bartholomew, *supra* note 82, at 842 (discussing the moral dimensions of inducement liability in copyright law).

308. *See supra* Part II.B.

309. *See, e.g.*, Turner v. Lotts, 422 S.E.2d 765 (Va. 1992).

310. *See supra* text accompanying note 29. Moreover, in contrast to direct patent infringement, many forces should deter the would-be primary tortfeasors from engaging in reckless driving—criminal liability, personal liability in tort, physical injury, and moral opprobrium.

the "infringing capable" feature in all of the units of the product it sold, and it should owe the patentee compensation for those benefits.[311]

The problem of end user deterrence reinforces these observations. Because patent infringement does not give rise to criminal liability,[312] and individual customers like Outlook users are almost never sued in tort for direct patent infringement,[313] there is essentially no practical legal mechanism for deterring direct infringers in many "infringing customer" cases. Copyright owners engage in "education" campaigns to warn those who copy files that they might get into trouble,[314] but we typically don't see patent owners like Lucent warning average consumers not to use certain features of their products. Indeed, by not providing for statutory

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311. A related point, likening indirect infringement to an unfair competition tort, was advanced by a commentator in the early 1970s:

> Under the traditional view of patent infringement as a form of trespass on the case, it was reasonable for courts in early patent suits to view direct infringers and their aiders and abettors collectively as co-conspirators in a joint enterprise, acting in concert to commit a trespass, in pursuance of a common design. Such a view was and still is probably correct as far as the legal result, namely, joint and several liability, is concerned. However, a modern and more realistic approach to the nature of the tort itself suggests that patent infringement, in its 'indirect' form at least, is analogous to a tortious interference with economic relations. Thus, a large part of a patent's value resides in *probable expectancies in the form of future profits or royalties, rather than in present tangible value characteristic of the traditional forms of property involved in trespass actions. Therefore, the aiding and abetting of a direct infringer would seem to warrant 'characterization' as an injury or interference with such prospective economic advantages.*

Charles E. Miller, *Some Views on the Law of Patent Infringement By Inducement*, 53 J. PAT. OFF. SOC'Y 86, 92 n.14 (1971) (citing WILLIAM L. PROSSER, HANDBOOK OF THE LAW OF TORTS § 124 (3d ed. 1964) and Koratron Co. v. Deering Milliken, Inc., 418 F.2d 1314 (9th Cir. 1969)) (emphasis added).

312. *Cf.* Sherkow, *supra* note 19, at 4. In contrast, criminal liability is possible for copyright infringement. *See* 17 U.S.C. § 506 (2006); *see also* Joe Palazzolo, *How Much Does Illegally Sharing a Song Cost? $9,250*, WALL ST. J. L. BLOG (Sept. 11, 2012, 1:11 PM), http://blogs.wsj.com/law/2012/09/11/how-much-does-illegally-sharing-a-song-cost-9250 (describing a successful lawsuit for direct copyright infringement). To be sure, there are instances of accidental copyright infringement that individuals may engage in every day. *See generally* John Tehranian, *Infringement Nation: Copyright Reform and the Law/Norm Gap*, 2007 UTAH L. REV. 537. Still, there surely is more deliberate (i.e., knowingly wrongful) copyright infringement than deliberate patent infringement by ordinary consumers—which makes sense, because copyright infringement requires copying.

313. *See supra* note 23 and accompanying text; *see also supra* note 310 and accompanying text. The fact that recent proliferation of threatened and actual infringement complaints against small-business end users of patented technologies has shocked the conscience and led to reform proposals that would limit such suits in favor of suits against manufacturers reinforces the close nexus between indirect infringement and harm to the patentee. *See, e.g.*, Brian J. Love & James C. Yoon, *Expanding Patent Law's Customer Suit Exception*, 93 B.U. L. REV. 1605, 1614 (2013) (calling manufacturers "the true party in interest" in cases where customers are sued).

314. *See* Programs for Educators, RECORDING INDUS. ASS'N OF AM., http://riaa.org/toolsforparents.php?content_selector=resources-programs-for-educators (last visited Jan. 11, 2014).

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damages[315] and barring double recovery[316] from direct and indirect infringers (both of which are allowed in copyright law),[317] the Patent Act makes deterrence of direct infringement in some cases so impractical as to be all but impossible.[318] In contrast, a manufacturer-inducer like Microsoft must, by hypothesis, be aware of the patent in order to incur liability and may be in position to avoid infringement by redesigning the infringing product or entering into a license agreement.[319] In line with this reality, patent law aims to deter infringement by imposing liability on the manufacturers and allowing patentees to collect compensation from them on indirect liability theories.[320] The law's focus on the indirect infringer as the source of legal recourse for the patentee in cases where direct infringement entails personal use of the technology covered by the patents makes it difficult to insist on the legal fiction of imputation in the damages context.

Indeed, patent law already effectively sidesteps the imputation formalism in other contexts. For example, when the courts enjoin indirect infringers, they do not merely order them to stop carrying out acts of active inducement (e.g., providing instructions to end users). The courts, tellingly, do not leave the patentee with the option to sue and pursue injunctions against each end user who continues to carry out infringing acts once the inducing conduct ceases. Instead, they generally enjoin the inducer from "making" and "selling" the product capable of carrying out the claimed method, which are distinctly § 271(a), not § 271(b),

315. *Cf.* 17 U.S.C. § 504 (2006) (statutory damages for copyright infringement).

316. *See* Jerry R. Selinger & Jessica W. Young, *Suing an Infringing Competitor's Customers: Or, Life Under the Single Recovery Rule*, 31 J. MARSHALL L. REV. 19 (1997).

317. *See* 17 U.S.C. § 504 (2006); *supra* text accompanying note 315; *see also* Arista Records LLC v. Lime Grp. LLC, No. 06-CV-5936(KMW), 2011 WL 1338194, at *2–3 (S.D.N.Y. Apr. 7, 2011) (examining "whether a plaintiff should be precluded from recovering a statutory damage award from a secondarily liable inducer, with respect to those sound recordings for which that plaintiff has already obtained a judgment against an individual direct infringer," and holding that "[s]ection 504 does *not* state that a copyright owner is limited to a single statutory damage award for each work, no matter how many actions the owner brings").

318. Patent law also lacks a right of contribution, though such a right was recently proposed. *See* Bernard Chao, *The Case for Contribution in Patent Law*, 80 U. CIN. L. REV. 97 (2011).

319. *See* Rantanen, *supra* note 74, at 1591 ("Indirect infringement . . . serves a deterrence function, as it incentivizes parties to avoid or minimize conduct that results in third-party infringement."). Nevertheless, the deterrence rationale might be weaker for indirect infringers who developed the infringing technology before they knew of the patent. *See* Love, *supra* note 126, at 934–41 (explaining why the deterrence rationale does not apply to independent developers unaware of the patent).

320. *See also supra* text accompanying note 19.

activities.[321] This result is reasonable—it is the "making" and "selling," not "actively inducing," that is likely to be the more significant cause of the harm to the patentee.[322] Furthermore, as discussed above, the hypothetical negotiation in inducement cases is assumed to take place between the patentee and the inducer, not between the patentee and multiple end users.[323]

Thus, in some important ways, the courts basically treat inducers almost as if they were direct infringers. This approach reflects the intuition that, in many cases, inducers seem to have done everything possible to ensure that patent infringement would occur,[324] but avoided actually performing the claimed steps themselves. It would appear incoherent for the courts to retreat from this position at the point of assessment of damages, and switch to treating indirect infringement as a series of discrete directly infringing acts imputed onto the inducer.

2. *The Evidentiary Approach Properly Tracks the Scope of the Patent Right*

The reader might come to believe that, contrary to sound policy and established law, I advocate extending the scope of the patent right to unpatented items. Indeed, it is beyond reasonable dispute that, as the district court in *A&L Technology v. Resound Corp.* put it, "the established

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321. *See, e.g.*, i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 861 (Fed. Cir. 2010), *aff'd*, 131 S. Ct. 2238 (2011) (affirming an injunction to prohibit "Microsoft from . . . selling, offering to sell, and/or importing into the United States any infringing Word products *with the capability of opening XML files containing custom XML*") (emphasis added); Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1364–65, 1371–72 (Fed. Cir. 2004) (underlying direct infringement satisfied by "physicians order[ing] assays and *correlat[ing] the results* of those assays"; actus reus of inducement satisfied by "LabCorp publish[ing] both Continuing Medical Education articles as well as a Directory of Services that are specifically targeted to the medical doctors ordering the LabCorp assays"; scope of injunction: "*to enjoin LabCorp from performing [the inducing] test*") (emphases added) (internal quotation marks omitted); *see also* Forest Labs., Inc. v. Ivax Pharm., Inc., 501 F.3d 1263, 1272 (Fed. Cir. 2007) ("Under the standards for inducement which we apply to 35 U.S.C. § 271(b), [the indirect infringer] has therefore actively induced the acts of [the direct infringer] that will constitute direct infringement . . . and it was thus not inappropriate for the district court to include [the indirect infringer along with the direct infringer] within the scope of the injunction.").

322. Perhaps this is just a more efficient way to remedy the infringement—inducing acts might be more difficult to monitor than, for example, sales. An argument can certainly be made that the courts issuing injunctions in indirect infringement cases should order defendants to stop "inducing" rather than "making" and "selling." But I think it is telling that they do not.

323. *See supra* text accompanying notes 140–42.

324. Notably, a decision that is widely regarded to usher in indirect liability in patent law called such acts of aiding direct infringement a "palpable interference" with the patent right. Wallace v. Holmes, 29 F. Cas. 74, 80 (C.C.D. Conn. 1871) (No. 17,100). *See* Adams, *supra* note 14, at 371–72 (discussing *Wallace*); *see also supra* note 311 and accompanying text.

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royalty rate . . . should be applied only to sales of infringing products to avoid running afoul of the policy in patent law against extending patents beyond their lawful scope."[325] Doesn't inclusion of units that have not been used to infringe in the royalty base in effect result in charging the indirect infringer for selling a noninfringing product? One answer, already suggested above, is that the royalty rate that properly tracks the chosen royalty base will ensure appropriate compensation for the patentee.[326] But there is another reason, related to the principle of using "convoyed" or collateral sales of non-patented items with the patented item to determine the proper royalty,[327] that counting "infringing capable" units in the royalty base is consistent with established patent damages principles.[328]

Explaining convoyed sales, the *A&L* court modified its seemingly black-and-white "lawful scope" statement when it stated that the "licensee would in theory be disposed to pay a higher royalty if it could expect . . . collateral benefits,"[329] such as sales on non-patented products that form a "functional unit" with the product covered by the claims of the asserted patent.[330] Although somewhat controversial,[331] this rule has long been a mainstay of patent law.[332] Convoyed sales are subsumed under the sixth *Georgia-Pacific* factor,[333] firmly entrenched in the reasonable royalty

325. No. C-93-00107-CW, 1995 WL 415146, at *1 (N.D. Cal. June 29, 1995).

326. Although the Federal Circuit held that it is error to adjust the royalty rate to make up for the incorrect royalty base, *see supra* text accompanying note 250, my argument at *supra* Part V.A.1 is precisely that the royalty base that includes noninfringing units can be correct in many circumstances.

327. *See, e.g.*, Am. Seating Co. v. USSC Grp., Inc., 514 F.3d 1262, 1268 (Fed. Cir. 2008) ("A 'convoyed sale' refers to the relationship between the sale of a patented product and a functionally associated non-patented product."); Interactive Pictures Corp. v. Infinite Pictures, Inc., 274 F.3d 1371, 1385 (Fed. Cir. 2001) ("The jury was entitled to rely on evidence of bundling [of the product covered by the patent with the product not covered by the patent] and convoyed sales in determining the proper scope of the royalty base.").

328. *Cf. Interactive Pictures*, 274 F.3d at 1385 ("[Earlier precedent] does not require that estimates of sales revenues, as referenced in a hypothetical negotiation at the time infringement began, must later bear a close relation to actual sales revenue. *Such a proposition would essentially eviscerate the rule that recognizes sales expectations at the time when infringement begins as a basis for a royalty base as opposed to an after-the-fact counting of actual sales*.") (emphasis added).

329. *A&L Tech.*, 1995 WL 415146, at *1.

330. Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1550 (Fed. Cir. 1995) (en banc).

331. *Id.* at 1556 (Nies, J., dissenting) ("A royalty must be based on the value of the patented hook, not on other features in the infringing device, *e.g.*, the motors, which form no part of the patented invention used by [the defendant]"); Lemley, *supra* note 107, at 665 (criticizing the importation of the concept of "convoyed goods" from lost profits cases into the reasonable royalty context).

332. *Interactive Pictures*, 274 F.3d at 1385; State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580 (Fed. Cir. 1989); TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 901 (Fed. Cir. 1986); Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc., 750 F.2d 1552, 1568 (Fed. Cir. 1984).

333. Ga.-Pac. Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) (this factor is "[t]he effect of selling the patented specialty in promoting sales of other products of the licensee; the

damages jurisprudence.[334] In addition, convoyed sales can and do become a part of the royalty base, though of course the fact-finder must be careful to avoid double-counting this factor.[335]

To prove convoyed sales,[336] the patent owner must generally show that the purchase of the convoyed good was driven by the demand for the claimed feature,[337] or at the very least associated in some way with the product that includes that feature.[338] By analogy, if the plaintiff can show that the claimed feature was responsible for generating some of the demand for the product, it does not seem far-fetched to charge the indirect infringer a royalty on each sale of the product containing the feature. As one of the amicus briefs in *Lucent* noted, this scenario is easily foreseeable for inventions whose value to their user lies in their *capability* of performing the claimed method—be they airbags, defibrillators, or snow-making machines.[339]

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existing value of the invention to the licensor as a generator of sales of his non-patented items; *and the extent of such derivative or convoyed sales*") (emphasis added).

334. *See State Indus.*, 883 F.2d at 1580 ("The value of collateral sales could also be factored into the royalty rate.") (citing Deere & Co. v. Int'l Harvester Co., 710 F.2d 1551, 1559 (Fed. Cir. 1983)); *see also* Michael R. Annis & Brad L. Pursel, *Intellectual Property Valuation Under U.S. GAAP and the Impact on Intellectual Property Litigation*, 38 AIPLA Q.J. 373, 390 (2010) ("A reasonable royalty rate accounts for derivative sales because a hypothetical licensee expecting a patent to generate such sales would pay a higher royalty.").

335. As with the "extent of infringing use" factor, the convoyed sales analysis should be properly applied only once to determine the royalty rate or the royalty base, or else used in a holistic reasonable royalty determination to award a lump-sum royalty. *Cf. Interactive Pictures*, 274 F.3d at 1385 (discussing "unfair double recovery" when using convoyed sales to adjust both the rate and the base); *see Rite-Hite*, 56 F.3d at 1549 n.9 ("[The] issue of royalty base is not to be confused with the relevance of anticipated collateral sales to the determination of a reasonable royalty rate.").

336. The convoyed sales principle started off as only applicable to lost profits but expanded to reasonable royalties. *See infra* note 345 and accompanying text. I think that the atomistic approach is also generally unsuitable when the measure of damages is lost profits in part because it would be inconsistent with the economic realities underlying the convoyed sales principle. However, the analysis is different because the lost profits approach involves an ex post determination of what sales the plaintiff has lost due to the infringement and does not have anything to do with a hypothetical negotiation between the parties. *See* Ben-Shahar, *supra* note 256, at 14 (explaining that lost profits and reasonable royalties measures of patent damages are fundamentally different because "[e]ach conforms to a different remedial conception"; lost profits is an ex post measure and "serves with great accuracy the 'make whole' principle," while reasonable royalty is an ex ante measure and "mimics the bargain that would have been struck," thus "protect[ing] the patentee's market position"). In indirect infringement cases where the lost profits measure is used, the relevant question is whether the patentee lost sales based on the indirect infringer's sales of "infringing capable" units—and if the plaintiff can prove that this is the case, it should collect lost profits damages on sales of such units.

337. *See, e.g.*, Laserdynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 67 (Fed. Cir. 2012).

338. Kaufman Co. v. Lantech, Inc., 926 F.2d 1136, 1144 (Fed. Cir. 1991).

339. *See* Brief of 13 Diverse Innovators as *Amici Curiae* in Support of Lucent Technologies, Inc. at 26, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301 (Fed. Cir. 2009) (Nos. 2008-1485, 2008-1486, 2008-1487, 2008-1495), 2009 WL 870147, at *26 ("[T]here are some inventions having value that is derived from just being available, not from actually being used. For example, someone buying

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Of course, when taken to its logical extreme, the argument for assessing damages on "capability" products collapses. If an *individual* user bought a defibrillator capable of performing the claimed method of cardioversion when deployed, but ended up never needing the defibrillator, no infringement damages would be due from that person because he or she has not performed acts giving rise to liability. This is a difficult outcome for the patentee, but the problem could have perhaps been anticipated with appropriate claim drafting.[340]

The situation is different, however, in the *Lucent* and *Cardiac Pacemakers* cases. There, liability for indirect infringement had already been established, and the infringement actions proceeded to the separate step of damages assessment.[341] At that stage, the question of whether to include noninfringing but "infringing capable" units in the royalty base merely relates to how to best measure the magnitude of legal harm to the right to exclude that occurred due to the infringement.[342] The hypothetical negotiation analysis tackles this question, with the fact-finder having to figure out whether noninfringing units would have been included in the royalty base by the parties.[343] In some situations, the patentee would have surely received a royalty payment on the sale based only on the predicted demand for the feature covered by the patent—regardless of whether the claimed method was actually practiced by the end user.[344] Assessing damages on such sales in the reasonable royalty context is thus consistent with the but-for test that underlies the convoyed sales principle.[345]

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an automobile probably considers an airbag an important feature. But an airbag has value even if it is never actually used—in fact, the customer hopes it is never used. In this situation, therefore, the *value* of a patent on the use of airbags to a prospective licensee—and thus the royalty that would be the result of the hypothetical negotiation—would depend on the number of airbags to be placed in vehicles, not the number of airbags that might subsequently inflate in collisions. The same thing could be said for any number of inventions, from defibrillators to antivirus software to spare tires. Requiring district courts in these situations to limit damages awards based on the actual use of the invention, rather than on the invention's real value, would divorce the damages analysis from economic reality.").

340. *See, e.g.*, Mark A. Lemley et al., *Capability Claiming*, *available at* https://www.law.stanford.edu/sites/default/files/event/266396/media/slspublic/Panel%201%20-%20Mark%20Lemley,%20et%20al%20-%20Capability%20Claiming.pdf (explaining how method claims cast in functional terms, such as claims that include "capable of" phrasing, may afford broader claim coverage). Apparatus claims can also help the patent owner in this scenario. *See supra* text accompanying notes 52–53.

341. That is, the focus at this point is on measuring damages appropriate to compensate the patentee, a task that can be accomplished using all infringing capable units as the royalty base. *See supra* Parts IV.A.2 & IV.B; *see also supra* note 319 and accompanying text.

342. *See supra* note 322 and accompanying text.

343. *See supra* Part V.A.2.

344. *See supra* note 228 and accompanying text.

345. *See* Seaman, *supra* note 132, at 1700–01 (explaining that the "entire market value" analysis in the reasonable royalty context represents an extension of the convoyed sales principle from lost

The general approach of "liability opening the door to damages" is not unprecedented. In the well-known case of *Sheldon v. Metro-Goldwyn Pictures Corp.*,[346] the Second Circuit (per Judge Learned Hand) allowed the plaintiff to recover damages for exploitation of a copyrighted work abroad. Although the rule of *Sheldon* is in tension with the principle of territoriality of copyright law,[347] the court reasoned that, because the initial act of infringement (i.e., copying) occurred in the United States, damages attributable to the infringement—no matter where the copyrighted work was ultimately used—could be properly assessed on the theory of constructive trust.[348] While the issue in *Sheldon* is not exactly analogous, the case provides an interesting example of a court's refusal to approach infringement as a series of multiple, atomized sub-torts at the damages stage of the case.[349]

I do not mean to suggest that the atomistic approach is inapplicable in all patent damages scenarios. Nevertheless, the principle of convoyed sales

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profits cases to reasonable royalties). *See generally* Blair & Cotter, *supra* note 298 (advocating the but-for approach for patent damages generally).

346. 106 F.2d 45, 52 (2d Cir. 1939), *aff'd*, 309 U.S. 390 (1940); *accord* L.A. News Serv. v. Reuters Television Int'l, Ltd., 149 F.3d 987, 992 (9th Cir. 1998) ("Under the Second Circuit's rule . . . a party becomes liable for extraterritorial damages only when an act of infringement occurs within the United States, subjecting it to liability as an infringer (or a contributory infringer) under the Copyright Act.").

347. *L.A. News*, 149 F.3d at 990–91.

348. *Sheldon*, 106 F.2d at 52. The implications of this approach to patent damages are worth exploring. It is well-settled that a sale of a patented item abroad is outside of the reach of U.S. patent law. *See* Dowagiac Mfg. Co. v. Minn. Moline Plow Co., 235 U.S. 641, 650 (1915). Thus, license agreements based on U.S. patents do not generally trigger royalty obligations for extraterritorial sales. A more interesting situation would arise if the sale of a unit occurred in the United States but the method was practiced abroad. Since the test is what the parties would have agreed to in a hypothetical negotiation, it would appear that the plaintiff could collect damages for such units if it could prove that the royalty agreement would have been based on sales—without regard to where the infringing item would be used. However, the powerful presumption against extraterritorial application of U.S. patent law might militate against the award of damages in this scenario and justify "atomistic" reasoning here. *See, e.g.*, Microsoft Corp. v. AT&T Corp., 550 U.S. 437, 454–55 (2007); *see also* Timothy R. Holbrook, *Extraterritoriality in U.S. Patent Law*, 49 WM. & MARY L. REV. 2119, 2129–36 (2008) (discussing the Supreme Court's strict application of the presumption against extraterritoriality). Thus, I do not necessarily advocate collecting damages for indirect patent infringement when the steps of the claimed method are carried out abroad. *Cf.* Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc., 711 F.3d 1348, 1371–72 (Fed. Cir. 2013) ("[T]he underlying question here remains whether [the plaintiff] is entitled to compensatory damages for injury caused by infringing activity that occurred outside the territory of the United States. The answer is no. . . . [T]he entirely extraterritorial production, use, or sale of an invention patented in the United States is an independent, intervening act that, under almost all circumstances, cuts off the chain of causation initiated by an act of domestic infringement.").

349. *See also* Tire Eng'g & Distribution, LLC v. Shandong Linglong Rubber Co., 682 F.3d 292, 308 (4th Cir. 2012) (adopting this so-called "predicate-act doctrine" for copyright damages in the Fourth Circuit).

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supports the general point that the evidentiary approach to the measure of damages is not unprecedented and does not impermissibly overcompensate the patentee. In indirect patent infringement cases, it is not that inducers are charged for selling items that only have the capability to infringe. Instead, the issue is better viewed as follows: Upon being found liable for indirect infringement, the defendants may become exposed to a measure of damages that, in order to ensure an accurate calculation of harm, includes all "infringing capable" units in the royalty base. In contrast, the atomistic approach analytically breaks down the indirect infringement into individual sub-torts[350] and limits the damages accordingly. This sort of analysis, however, is in tension with the but-for approach adopted for convoyed sales, which treats damages holistically.[351] If the defendant can be charged for sales of convoyed but completely unpatented items, it appears consistent to also charge it for sales (at the appropriate royalty rate) of "infringing capable" items on which the parties would have based the royalty.

VI. CONCLUSION

The law of damages is a highly contentious part of patent litigation, and numerous reform proposals have been introduced to ensure that damages awards for infringement provide an appropriate level of compensation for patent owners without becoming punitive or out of proportion to the value of the patented invention.[352] It is often said that the courts have struggled to fulfill their gatekeeping role under the current legal framework for measuring patent damages,[353] though other commentators have argued to the contrary[354] and recent cases indicate a

350. *See supra* text accompanying note 212.

351. *See, e.g.*, Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538 (Fed. Cir. 1995) (en banc). *Cf.* Seaman, *supra* note 132, at 1700–01.

352. Durie & Lemley, *supra* note 124 (providing an approach to reasonable royalties that might help the courts more effectively serve their gatekeeping function); Love, *supra* note 126 (suggesting reforms that might ensure that reasonable royalty damages do not effectively become punitive); David W. Opderbeck, *Patent Damages Reform and the Shape of Patent Law*, 89 B.U. L. REV. 127 (2009) (criticizing and discussing proposed Congressional reforms of patent damages); John W. Schlicher, *Patent Damages, the Patent Reform Act, and Better Alternatives for the Courts and Congress*, 91 J. PAT. & TRADEMARK OFF. SOC'Y 19, 41–43, 56–58 (2009) (similar).

353. *See, e.g.*, Bensen & White, *supra* note 100; Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307 (2006); Durie & Lemley, *supra* note 124; Love, *supra* note 126.

354. Martha K. Gooding & William C. Rooklidge, *The Real Problem with Patent Infringement Damages*, 91 J. PAT. & TRADEMARK OFF. SOC'Y 484, 506 (2009) ("There is a common perception that 'damage awards are seldom overturned on appeal.' That perception is wrong. Even discounting damage awards that are overturned because of reversal or vacatur of the underlying liability ruling, the

trend toward increasingly vigorous review of damages awards at the Federal Circuit.[355]

This Article has focused on damages for indirect infringement and discussed two Federal Circuit opinions that reflect this trend. One of the opinions, *Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc.*,[356] has endorsed a special damage-limiting rule for indirect infringement cases that may result in systematic undercompensation of patent plaintiffs.[357] The *Cardiac Pacemakers* rule is misguided. Secondary liability in patent law has firm historical roots,[358] making suspect an approach that departs from established principles and likely results in an artificially low compensation for indirect infringement.[359]

Furthermore, the inducement of infringement cause of action under § 271(b) often provides the only realistic route for enforcing method claims.[360] Although they are an integral part of the statutory scheme,[361] method claims are already somewhat disfavored because of the evidentiary difficulties associated with proving their infringement[362] and doctrines that limit their usefulness.[363] *Cardiac Pacemakers* further singles out method

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Federal Circuit has overturned many damages awards. Indeed, the Federal Circuit repeatedly has shown willingness to overturn *jury* damages verdicts.") (footnotes omitted); *see also* Opderbeck, *supra* note 352, at 131.

355. Laserdynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51 (Fed. Cir. 2012); Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292 (Fed. Cir. 2011); Wordtech Sys., Inc. v. Integrated Networks Solutions, Inc., 609 F.3d 1308 (Fed. Cir. 2010); ResQNet.com, Inc. v. Lansa, Inc., 594 F.3d 860 (Fed. Cir. 2010); Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301 (Fed. Cir. 2009).

356. 576 F.3d 1348 (Fed. Cir. 2009).

357. *See supra* Part IV.B.

358. *See generally* Adams, *supra* note 14.

359. *Cf. supra* Part V.A.2.

360. *See supra* text accompanying note 52.

361. 35 U.S.C. § 100(b) (2006) (defining "process" as "*process*, art, or *method*, and . . . a new use of a known process") (emphases added); *id.* § 101 ("Whoever invents or discovers any new and useful *process*, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor . . . .") (emphasis added).

362. *See* Sean B. Seymore, *Rethinking Novelty in Patent Law*, 60 DUKE L.J. 919, 957–58 n.188 (2011) (describing evidentiary difficulties in proving infringement of method claims and other disadvantages of such claims); *see also* Dan L. Burk, *Patenting Speech*, 79 TEX. L. REV. 99, 148 (2000) ("[P]olicing prohibited uses of patented inventions is notoriously difficult. For precisely this reason it is a maxim—and almost a cliché—that a patent owner would rather hold a product patent than a process patent. . . . [P]rocess infringement occurs behind the scenes, in use or production of the unpatented materials, and it is not always possible to tell whether the materials were made via the patented process or via some other public domain process.").

363. *See, e.g.*, Akamai Techs., Inc. v. Limelight Networks, Inc., 692 F.3d 1301, 1305–06 (Fed. Cir. 2012) (en banc) (per curiam), *rev'd*, 134 S. Ct. 2111 (2014) (explaining the difficulty of establishing direct infringement of method claims in the "divided infringement" context); Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 576 F.3d 1348, 1359–65 (Fed. Cir. 2009) (en banc in relevant part) (concluding that 35 U.S.C. § 271(f), which holds liable for infringement those who supply from the U.S. "all or a substantial portion of the components of a patented invention" or "any component of

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claims for unfavorable treatment and does so in a manner inconsistent with the widely accepted hypothetical negotiation framework. Just as uncertain patentability of method claims might reduce incentives to innovate in industries where other claim types provide little useful coverage or are difficult to draft,[364] availability of systematically lower damages for indirect infringement of such claims might lead to the same undesirable effect.

In devising a uniform approach to indirect infringement damages, the courts should take into account the policies behind the indirect infringement causes of action and the important role that method claims play in providing patent protection. The first step in the search for the proper remedial approach, however, is to realize that secondary liability in patent law is quite different from its tort law roots, which calls into question the value of the imputation formalism in the damages analysis.

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a patented invention that is especially made or especially adapted for use in the invention" for assembly abroad, does not apply to method claims); *see also* Christopher T. Abernethy, *Cruel Hand of* Bilski: *Culminating the Shortsighted Crusade for the Marginalization of the 'Process' Patent* (May 2009) (unpublished comment), *available at* http://papers.ssrn.com/abstract=1420205 (describing challenges to the patent eligibility of method claims directed to certain subject matter).

364. *See* Abernethy, *supra* note 363, at 24–27.