

A RELEVANT INTENT THEORY OF PATENTS

Saurabh Vishnubhakat^{*}

This article challenges the axiom of U.S. patent law that direct patent infringement is a strict liability tort. Even among critics of the strict liability conception in certain patent contexts, the consensus view of direct infringement remains that impermissibly practicing a patented invention creates liability without regard for the infringer's intent to infringe the patent or even for her knowledge of the patent, and that this is a form of strict liability. This strict liability view disregards the wrong intent because torts at every level of purposive action create liability based on an intent to perform an act that the law deems tortious, not on an intent to commit a tort. Though the patent infringement statute supports such a reading, patent infringement jurisprudence in practice does not proceed from this true strict liability premise. The law of direct infringement currently takes little positive or negative account of the relevant intent of an alleged infringer. This article fills that gap with a framework that applies well-understood tort principles to patents based on a theory of relevant intent. The proposed framework offers a powerful new policy lever in the current debate about the notice function of patents and about the effects of patent assertion on static and dynamic efficiency in the U.S. patent system.

^{*} Postdoctoral Associate, Duke University School of Law; Expert Advisor, United States Patent and Trademark Office. The arguments in this writing are the author's and should not be imputed to the USPTO or any other organization. [Acknowledgments]

Table of Contents

INTRODUCTION	3
I. PATENT INFRINGEMENT AS A STRICT LIABILITY TORT	4
A. THE CENTRAL DOGMA	4
1. The Historical Basis for a Strict Liability View	4
2. Existing Departures from Strict Liability	7
3. The Overlooked Inquiry	10
B. THE OVERBURDENED NOTICE REQUIREMENT	12
1. Two Metaphors of Patent Notice	12
2. Notice of Claim Scope	14
II. A THEORY OF RELEVANT INTENT	19
A. TORT AND THE EXERCISE OF AGENCY	20
1. A Brief History of Tort	20
2. Gradations of Tortious Intent	22
3. The Case of Trespass to Land	23
B. RELEVANT INTENT IN PATENT INFRINGEMENT	27
1. The Statutory Basis for Relevant Intent	27
2. Relevant Intent and Divided Infringement	30
III. TOWARD A NEW VIEW OF DIRECT INFRINGEMENT	32
A. PATENT INFRINGEMENT AS AN INTENTIONAL TORT	33
1. Infringing Acts	33
2. Doctrinal Consequences	36
B. CLAIM CONSTRUCTION	37
1. Linguistic versus Purposive Construction	37
2. The Role of Relevant Intent	40
C. INHERENCY AND THE ANTICIPATION-INFRINGEMENT SYMMETRY	44
1. The Anticipation Doctrine	44
2. The Inherency Doctrine	45
3. The Role of Relevant Intent	47
CONCLUSION	49

INTRODUCTION

It is axiomatic in patent law that direct infringement is a strict liability tort. Because a patent creates a right to exclude others from making, using, offering for sale, or selling the patented invention, performing any of these activities—that is, practicing the patented invention—without authorization from the patent owner constitutes direct infringement of the patent. The established view of direct infringement is that impermissibly practicing a patented invention creates liability without regard for the infringer’s intent to infringe the patent or even for her knowledge of the patent, and that this is a form of strict liability. An intent to infringe or an actual or constructive knowledge of the patent, if present, may further establish that the infringement was willful and merits enhanced relief. Yet the underlying direct infringement requires neither of these preconditions.

This strict liability conception makes adequate public notice about the existence and boundaries of patent rights essential to justifying the patent system. If someone may become liable for infringement without any general or specific intent to infringe or any knowledge that the patent right even exists, then fairness seems to demand that the patent system make abundantly clear *ex ante* the existence and scope of such exclusionary rights. Thus, the most forceful evidence of patent failure is notice failure, particularly where it inures to the benefit of so-called patent trolls who trade on information asymmetries and ambiguities about the scope of patent rights.

Yet this strict liability view disregards the wrong intent. Torts at every level of purposive action, from intention to recklessness to negligence to strict liability, create liability based on an intent to perform an act that the law deems tortious, not on an intent to commit a tort. Thus, even if direct infringement were an intentional tort, an infringer could still be liable without any knowledge of the patent or any intent to infringe it—so long as she intended to perform an act that constitutes infringement: make, use, offer for sale, or sell the patented invention. Conversely, for direct infringement truly to be a strict liability tort, liability would have to arise without regard for whether the infringer intended to perform an act that constitutes infringement. Though the patent infringement statute textually supports such a reading, infringement jurisprudence has not proceeded from this true strict liability premise. Direct infringement analysis currently takes no systematic account of the relevant intent of an infringer.

To fill that analytical gap, this article reexamines the strict liability view of direct infringement through a framework of well-understood tort principles. The result is a powerful policy lever in the current debates on the notice function of patents and on the effect of patent litigation on static and dynamic efficiency in the patent system. The article proceeds in three parts. Part I shows that the current working view of patent infringement as a strict liability tort mistakes which intent on the part of the infringer to set aside, and discusses the normative implications of this mistake. Part II derives a theory of relevant intent from traditional tort law principles, connecting the extent of a tortfeasor's liability to the level of purposive action involved in her commission of the tort. Part III applies this theory to direct patent infringement and discusses how requiring various levels of relevant intent on the part of a patent infringer is analytically consonant with other doctrines of patent infringement and offers policy benefits as to patent notice and abusive litigation practices.

I. PATENT INFRINGEMENT AS A STRICT LIABILITY TORT

As to the basic act of direct infringement, there is a widespread view that patent law, when imposing liability, takes no account of intent to infringe the patent or of knowledge that the patent even exists. These facts are relevant only to identify indirect forms of infringement or to determine the appropriate remedy. Accordingly, commentators and even courts routinely refer to direct patent infringement as a strict liability offense.

A. THE CENTRAL DOGMA

1. The Historical Basis for a Strict Liability View

Historically, the disregard for intent to infringe and for knowledge of the patent has long been a rule of U.S. patent infringement law, with cases as early as the 1840s taking as given that one “may have infringed without intending, or even knowing it; but he is not, on that account, the less an infringer.”¹ By the time Professor Walker first published his 1883 treatise on patent law, it was well established that infringement required neither

¹ *Parker v. Hulme*, 18 F. Cas. 1138, 1143, No. 10740 (C.C.E.D. Pa. 1849). *See also Parker v. Haworth*, 18 F. Cas. 1135, 1136, No. 10738 (C.C. Ill. 1848) (instructing that “the defendant may not have been aware of the plaintiff’s right”).

knowledge of the patent nor appreciation that one's act is infringement.² Subsequent editions affirmed this understanding and further clarified that independent invention without any knowledge of the patent did not avert infringement.³ However, as early as Professor Robinson's 1890 treatise, the general body of law disregarding infringer intent already included an exception for what would later become the doctrine of contributory infringement:

But there are many actions, equivocal in character so far as the external operation is concerned, which are or are not acts of infringement according to the object contemplated by their actor,—actions otherwise innocent thus being regarded as violations of the rights secured by the patent, when intended as parts of a transaction which taken as a whole would be an infringement.⁴

Professor Robinson discussed these equivocal actions—infringement by unlawful making, by unlawful using, and by unlawful selling—as part of a unitary doctrine for capturing direct and contributory infringers,⁵ and so asserted a role for intent that arguably “has not borne out by subsequent developments.”⁶ For example, his discussion of infringement by unlawful making contemplates distinctions between making as a construction and making as a repair,⁷ a distinction whose current form does not consider the infringer's intent at all.⁸ Similarly, the same discussion also contemplates permissible makings for experimental purposes, though the experimental

² ALBERT H. WALKER, TEXT-BOOK OF THE PATENT LAWS § 377 (1883) [hereinafter “WALKER ON PATENTS (1883)”].

³ See ALBERT H. WALKER, TEXT-BOOK OF THE LAW OF PATENTS FOR INVENTIONS § 377 (1917) [hereinafter “WALKER ON PATENTS (1917)”]; ALBERT H. WALKER, A TREATISE ON THE LAW OF PATENTS FOR INVENTIONS § 377 (1929) [hereinafter “WALKER ON PATENTS (1929)”]; ANTHONY W. DELLER, 3 WALKER ON PATENTS § 453 (1937) [hereinafter “DELLER'S WALKER ON PATENTS (1937)”].

⁴ See WILLIAM C. ROBINSON, 3 LAW OF PATENTS FOR USEFUL INVENTIONS § 901 (1890) [hereinafter “ROBINSON ON PATENTS (1890)”].

⁵ *Id.* §§ 903–906.

⁶ R. CARL MOY, 4 MOY'S WALKER ON PATENTS § 14:17 (4th ed.)

⁷ ROBINSON ON PATENTS (1890), *supra* note 4, § 903.

⁸ See *Jazz Photo Corp. v. Int'l Trade Comm'n*, 264 F.3d 1094, 1105–06 (Fed. Cir. 2001) (discussing the repair/reconstruction dichotomy).

use exception, too, is widely regarded as all but a dead letter,⁹ particularly after the Federal Circuit’s decision in *Madey v. Duke University*.¹⁰ Nevertheless, Professor Robinson’s evaluation of allegedly infringing acts based on “the object contemplated by their actor” is not wholly misplaced, as it reflects an intuitive distinction between intending to infringe and intending to perform acts that constitute infringement, a distinction as meaningful as it is overlooked.¹¹

Apart from the general acceptance that intent is irrelevant to direct infringement, the designation of this principle as a form of strict liability is also widespread, though not as long-established. This vocabulary of strict liability pervades scholarly discussion both of patent infringement¹² and of analogous infringements of other intellectual property rights.¹³ In the face of this literature framing patent infringement as a strict liability tort, courts in the last twenty years have followed suit.¹⁴ The Federal Circuit has even elaborated further, discussing strict liability not only as a characterization to be inferred from the historical disregard both for intent to infringe and for knowledge of the patent, but as a premise to guide the infringement liability analysis itself.¹⁵

⁹ See, e.g., Sapna Kumar, *Life, Liberty, and the Pursuit of Genetic Information*, 65 ALA. L. REV. 625, 678 (2014).

¹⁰ *Madey v. Duke Univ.*, 307 F.3d 1351 (Fed. Cir. 2002).

¹¹ See *infra* Part I.A.3.

¹² See, e.g., A. Samuel Oddi, *Contributory Infringement/Patent Misuse: Metaphysics and Metamorphosis*, 44 U. PITT. L. REV. 73, 87 (1982) (referring to direct infringement under 35 U.S.C. § 271(a) as a strict liability tort).

¹³ See, e.g., A. Samuel Oddi, 64 NOTRE DAME L. REV. 47, 51–52 (1989) (arguing in footnote 29 that direct infringement incurs strict liability, not only for patents but also for trademarks and copyrights); Thornton Robison, *The Confidence Game: An Approach to the Law About Trade Secrets*, 25 ARIZ. L. REV. 347, 381n.162 (1983) (comparing a potential strict liability rule for innocent unauthorized use of trade secrets with the accepted strict liability rule of action for direct patent infringement under § 271(a)). Notably, independent creation is a defense to infringement in copyright and trade secrecy, necessarily moderating the practical reach of any discussion regarding infringer intent.

¹⁴ *Hilton Davis Chemical Co. v. Warner-Jenkinson Co., Inc.*, 62 F.3d 1512, 1527 (noting, with respect to the doctrine of equivalents, that “[i]nfringement is, and should remain, a strict liability offense”), *rev’d on other grounds*, *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 34–35 (accepting the Federal Circuit’s intent-neutral view of infringement—notably, without using the language of strict liability).

¹⁵ See *Jurgens v. CBK, Ltd.*, 80 F.3d 1566, 1570n.2 (explaining that patent infringement’s strict liability character obliges courts to give remedy “regardless of the intent, culpability or motivation of the infringer”).

2. Existing Departures from Strict Liability

Yet not all violations of patent rights give rise to strict liability, and the strict liability designation is not without caveat in the literature. Willful infringement, induced infringement, and contributory infringement all require some level of purposive action such as recklessness or actual intent, or some level of knowledge such as constructive or actual notice that the patent exists and is infringed.

Liability for willful infringement arises only where an infringer acts recklessly, that is, “despite an objectively high likelihood that its actions constituted infringement of a valid patent.”¹⁶ Proceeding recklessly in this manner does not itself create infringement liability—that threshold issue is still regarded as one of strict liability—but may warrant the imposition of enhanced damages up to threefold what the judge or jury assesses under 35 U.S.C. § 284.¹⁷ *Seagate* overruled the previous willful infringement standard set forth in *Underwater Devices Inc. v. Morrison-Knudsen Co.*,¹⁸ that a potential infringer with “actual notice of another’s patent rights . . . has an affirmative duty to exercise due care to determine whether or not he is infringing.”¹⁹ The effect of *Underwater Devices* and its progeny had included a duty to seek and obtain competent advice of counsel prior to any possible infringing activity²⁰ and the possibility that an absence of legal counsel could imply willfulness,²¹ though the Federal Circuit later relaxed the drawing of such adverse inferences.²² Thus, whereas *Underwater Devices* required actual notice of the patent but only negligence about determining and avoiding infringement, *Seagate* requires recklessness about determining and avoiding infringement but has no explicit requirement as to notice. Under *Seagate*, then, the objectively high likelihood that a willful infringer ignores may be a likelihood that a

¹⁶ See generally *In re Seagate Technology, LLC*, 497 F.3d 1360, 1370–71 (2007).

¹⁷ *Id.* at 1368 (noting that, “[b]ecause patent infringement is a strict liability offense, the nature of the offense is only relevant in determining whether enhanced damages are warranted”).

¹⁸ 717 F.2d 1380 (Fed. Cir. 1983).

¹⁹ *Id.* at 1389–90.

²⁰ *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1056 (Fed. Cir. 1994).

²¹ *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1579–80 (Fed. Cir. 1986)

²² *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1345–46 (Fed. Cir. 2004) (en banc).

known patent is infringed, or it may be a likelihood that a relevant patent exists all. For example, given a crowded technology with many patents, *Seagate* might well support a finding of recklessness, and therefore of willful infringement, based on a failure to conduct a patent search.²³

By contrast, liability for induced infringement requires that the alleged inducer knew the acts that he induced to constitute infringement.²⁴ Actual knowledge of the patent's existence is not necessary, however: it is enough that the alleged inducer believed there was a high probability that the combination was patented and took deliberate steps to avoid actual knowledge of that fact.²⁵ Liability for contributory infringement requires even more, that the alleged contributor actually knew that the combination to which her component contributed was both patented and infringing.²⁶ Thus, the statutory actions for induced and contributory infringement²⁷ are meaningfully different from the common law remedial basis of willful infringement. One result of this difference is that, read *in pari materia* with 35 U.S.C. § 271(a) which defines infringement as a basic matter, the induced and contributory infringement statutes both require an underlying direct infringement.²⁸ A second result of this difference is that, for willful

²³ See *Tomita Techs. USA, LLC v. Nintendo Co., Ltd.*, No. 11-4256, 2012 WL 2524770 (S.D.N.Y. June 26, 2012). The court in *Tomita* explained:

While an alleged infringer may often need to know of a patent's existence and scope in order to adequately comprehend the risk she faces, this case amply demonstrates that, in certain circumstances, an alleged infringer can know of an "objectively high likelihood" of infringement even though she does not know that the relevant patent has issued.

But see *Robocast, Inc., v. Microsoft Corp.*, No. 10-1055, 2014 WL 688644, *9 (D. Del. Feb. 21, 2014). Distinguishing *Tomita*, the court in *Robocast* did not find it *necessary* that an alleged infringer must conduct a patent search:

It seems contrary to waive the requirement for a non-infringement opinion when the defendant has knowledge of the patent and yet require a defendant to undertake a search to see if a patent existed in the first place.

²⁴ *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S. Ct. 2060, 2067–68 (2011).

²⁵ *Id.* at 2070–71.

²⁶ *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 488–89 (1961).

²⁷ The Patent Act creates induced infringement liability in 35 U.S.C. § 271(b) and contributory infringement liability in 35 U.S.C. § 271(c).

²⁸ *Mirror Worlds, LLC v. Apple Inc.*, 692 F.3d 1351, 1359–60 (explaining that "[i]nducement of infringement requires that there be a showing of an underlying act of direct infringement"); *Aro Mfg.*, 365 U.S. at 341 (finding it "settled that if there is no direct infringement of a patent there can be no contributory infringement").

infringement, courts may more readily reshape the necessary level of knowledge about the existence or infringement of a patent or of intent that can be inferred from that knowledge.²⁹ For induced and contributory infringement, however, the levels of intent that are more directly implicated in the statutory text make such common law revision both more unlikely to occur and more incremental when they do.³⁰

These various heightened requirements of knowledge and intent for imposing patent infringement liability have also been the subject of thoughtful academic discussion. Notable among this discussion are arguments to reformulate the conception of fault away from a mental state inquiry,³¹ to explore the inaptitude of culpability or intent in quantum-mechanical arts such as nanotechnology,³² and even to recast the current patent infringement system as one of “modified strict liability” often requiring notice of the patent.³³ Like the case law, however, these arguments accept as given that the underlying act of direct infringement is a strict liability tort for which liability itself does not require any intent to infringe nor any notice or knowledge of the patent or its infringement.³⁴

²⁹ See *Seagate*, 497 F.3d at 1371 (expressly overruling the standard for willful infringement set forth in *Underwater Devices* nearly a quarter-century earlier).

³⁰ See *Global-Tech*, 131 S. Ct. at 2068 (not only according the “special force” of *stare decisis* to the construction in *Aro Mfg.* of the intent inquiry for contributory infringement under § 271(c), but also adhering to the same logic in construing the analogous intent inquiry for induced infringement under § 271(b)).

³¹ See Jason A. Rantanen, *An Objective View of Fault in Patent Infringement*, 60 AM. U. L. REV. 1575 (2011).

³² See Siddharth Khanijou, *Patent Inequity?: Rethinking the Application of Strict Liability to Patent Law in the Nanotechnology Era*, 12 J. TECH. L. & POL’Y 179 (2007).

³³ See Roger D. Blair & Thomas F. Cotter, *Strict Liability and Its Alternatives in Patent Law*, 17 BERKELEY TECH. L.J. 799 (2002).

³⁴ See Rantanen, *supra* note 31, at 1590 (accepting direct infringement as a strict liability offense and focusing instead on willful, induced, and contributory infringement); Khanijou, *supra* note 32, at 197 (accepting direct infringement as a strict liability offense for purposes of infringement liability while identifying, as Professors Blair & Cotter do, a notice requirement for the recovery of damages); Blair & Cotter, *supra* note 33, at 800–01 (distinguishing between being liable for infringement, for which the “strict liability” designation is acceptable, and recovering damages, for which the 35 U.S.C. § 284 patent marking statute requires notice of the patent).

3. The Overlooked Inquiry

The widespread acceptance of direct infringement as a strict liability offense is problematic because the strict liability designation originally arose as an inference from what direct infringement does not require—intent to infringe, knowledge of the patent, and so on—but the designation has since become a starting premise for the infringement determination itself.³⁵ Yet strict liability is itself an incomplete inference and therefore an inapt premise, as it ignores an important element of determining direct patent infringement: whether there is an intent to perform the act that constitutes infringement.

The basis for inquiring into an alleged infringer's intent to perform such acts already exists implicitly in the direct infringement jurisprudence, in cases dating as far back as the early 20th century. In *Brothers v. U.S.*, for example, the plaintiff asserted a patent on improvements in cableways on gravity anchors whereby the towers connecting the cables would desirably yield or tilt.³⁶ The U.S. government, during construction of the Panama Canal, had built rigid cableway towers that happened to yield or tilt under the stress of tightened cables, and the patentee argued that this was infringement.³⁷ The U.S. Court of Claims found noninfringement, however, because the government's towers were rigid by design, and unintended mechanical behavior in the towers that happened to coincide with the patented invention was not infringement.³⁸ Likewise in *Pratt v. U.S.*, the plaintiff asserted a patent on a mechanism for hooking an airplane in flight to a stationary arresting apparatus and thereby gradually retarding the airplane's speed to land it at very short distance.³⁹ The U.S. government employed a mechanism on its naval aircraft carriers designed for hooking an airplane that had landed on the deck and thereby retarding only its forward progress, though at times the government's mechanism did happen to hook an airplane while the airplane was still technically in flight, and on this basis the patentee argued infringement.⁴⁰ The Court of Claims again found noninfringement, holding that if a device was

³⁵ *Supra* note 15 and accompanying text.

³⁶ *Brothers v. U.S.*, 52 Ct. Cl. 462, *4 (1917)

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Pratt v. U.S.*, 43 F.Supp. 461, 475 (Ct. Cl. 1941).

⁴⁰ *Id.* at 475–76.

constructed and intended to operate on a different principle than what the patent involved and intended, then inadvertent or unskillful operation that happened to coincide with the patented invention was not infringement.⁴¹ In both cases, the court found direct noninfringement, not because the defendant was unaware of the patent or because it did not intend to infringe, but because it did not intend to perform the underlying acts that constituted infringement.

This basis for direct noninfringement has survived into modern Federal Circuit jurisprudence as well. In *Pall Corp. v. Hemasure*, for example, plaintiff Pall Corp. asserted a patent on a venting system for filtering leukocytes from blood whereby porous membranes prevent the passage of air into a filtration chamber.⁴² Defendant Hemasure’s filtration system contained similar porous membranes, but were not intended to filter air from blood.⁴³ Accordingly, the court held that the divergent purpose of the membrane precluded liability for direct infringement even if the accused system appeared literally to infringe.⁴⁴ Conversely, in *Centillion Data Systems v. Qwest Communications*, plaintiff Centillion asserted a patent on a system for a service provider to gather, process, and deliver information to a customer.⁴⁵ Defendant Qwest argued that by accepting customer queries and performing the back-end processing itself, rather than allowing customers to use the entire system autonomously, there was no directly infringing “use” of the patented system.⁴⁶ The court, however, found direct infringement, reasoning that a customer’s engagement of the system by creating a query causes the remainder of the system to “act for its intended purpose” and so is enough to create a directly infringing use.⁴⁷ Thus, in these modern cases, too, the finding of direct infringement (or not) has turned on whether the alleged infringer’s conduct, whether by designing toward or away from a particular purpose, reflected an intent to perform the acts that constitute infringement.

⁴¹ *Id.*

⁴² *Pall Corp. v. Hemasure Inc.*, 181 F.3d 1305, 1307–08 (Fed. Cir. 1999).

⁴³ *Id.* at 1310–11.

⁴⁴ *Id.* at 1312.

⁴⁵ *Centillion Data Systems, LLC v. Qwest Communications Intern., Inc.*, 631 F.3d 1279, 1281 (Fed. Cir. 2011).

⁴⁶ *Id.* at 1284–85.

⁴⁷ *Id.* at 1285.

Yet despite this implicit role for intent in direct infringement—quite apart from knowledge of a patent or intent to infringe it—courts and commentators alike have mistakenly persisted in describing direct patent infringement as a strict liability offense. The mistaken strict liability conception, in turn, has had important consequences for the role of indeterminacy and notice in the patent system.

B. THE OVERBURDENED NOTICE REQUIREMENT

Critiques as well as defenses of the U.S. patent system regard notice as an essential function, and diverge largely on whether the current system adequately performs that function.⁴⁸ The indeterminacy that results from inadequate notice is forceful evidence that the exclusionary power of patents is not legally warranted and that their assertion is an illegitimate restraint of economic activity. Notice itself is not a unitary principle but rather a shorthand for two related requirements of the patent system, one prescriptive and the other descriptive. These forms of notice, in turn, call for precision as well as accuracy in order to be effective. For evaluating the impact of a strict liability view on direct infringement, it is precision in prescriptive notice that is of greatest importance.

1. Two Metaphors of Patent Notice

Prescriptive notice, or boundary notice about the scope of a patent's claims, is what most discussions of the patent system mean by the term "notice" in advocacy,⁴⁹ adjudication,⁵⁰ and academic discourse.⁵¹

⁴⁸ Compare, e.g., JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* 46–72 (2009) (arguing that patents currently provide inadequate notice as to their boundaries and so do not merit their broad property-like rights to enjoin others), with David J. Kappos, *Investing in America's Future Through Innovation: How the Debate over the Smart Phone Patent Wars (Re)Raises Issues at the Foundation of Long-Term Incentive Systems*, 16 STAN. TECH. L. REV. 485, 494–97 (2013) (arguing that ongoing administrative reforms in patent examination together with recent Federal Circuit case law and industry best practices have improved the clarity and correspondence between what patents disclose and what they claim, largely fulfilling the notice function).

⁴⁹ See, e.g., Defendant-Appellee's Response to Plaintiff-Appellant's Opening En Banc Brief at 40, *McKesson Techs. Inc. v. Epic Sys. Corp.*, No. 2010-1291 (Fed. Cir. Aug. 8, 2011), 2011 WL 3796780 (describing the function of the patent system's public notice function as providing "notice of the boundaries of the right to exclude").

Descriptive notice, or notice about the nature of the invention and how to practice it, is more commonly understood as the teaching function of patents.⁵² Thus, the institutional design of the patent system must resolve two subjects of indeterminacy: (1) the boundary notice function of delineating *ex ante* the scope of the exclusionary rights that a patent confers, and (2) the teaching function of describing and enabling the practice of the patented invention.

Debate over the operation and fulfillment of the boundary notice and teaching functions has relied much on metaphors of trespass and contract, respectively.⁵³ The boundary notice function reflects a need for clear, discernible limits so that others may avoid trespassing on the patentee's rights much as physical fences guard against unauthorized entry on real property.⁵⁴ The teaching function reflects a bargained-for exchange between an inventor and society where the inventor conveys a descriptive and enabling disclosure about her invention while society conveys in return a limited right for the inventor to exclude others from practicing it.⁵⁵ Both metaphors resonate strongly in American culture—the trespass

⁵⁰ See, e.g., *Invitrogen Corp. v. Clontech Laboratories, Inc.*, 429 F.3d 1052, 1070 (2005) (referring to notice as information about the “enforceable boundary of the commercial patent right”).

⁵¹ See, e.g., Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction?*, 157 U. PA. L. REV. 1743, 1745–46 (2009) (describing the notice function of patents as “setting out clear boundaries to warn the public of what is and is not claimed”).

⁵² See *University of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 922n.5 (2004) (distinguishing notice about what the invention is and how to practice it, from notice about the boundaries of what the patent allows one to exclude others from doing).

⁵³ Saurabh Vishnubhakat, *Cognitive Economy and the Trespass Fallacy: A Response to Professor Mossoff*, 65 FLA. L. REV. FORUM 38, 38–39 (2014).

⁵⁴ E.g., *Voda v. Cordis Corp.*, 476 F.3d 887, 900 (Fed. Cir. 2007) (referring to the violation of a patent right as a “trespass”). See generally Adam Mossoff, *The Trespass Fallacy in Patent Law*, 65 FLA. L. REV. 1687, 1692–94 (describing the history of the trespass metaphor in patent law).

⁵⁵ See, e.g., *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 63 (1998) (describing the patent system as “a carefully crafted bargain”); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484 (describing disclosure as “the *quid pro quo* of the right to exclude”). The Supreme Court has further noted that the metaphor of bargained-for exchange is particular to patents. See *Eldred v. Ashcroft*, 537 U.S. 186, 216 (stating that “our references to a *quid pro quo* typically appear in the patent context”).

metaphor with the importance of private property⁵⁶ and the contract metaphor with the importance of agreement as an exercise of autonomy.⁵⁷ In this conception, moreover, the contract must precede the trespass, as the bargain between inventor and society is what legitimates the inventor's property-like right against the encroachment of others' practice of her invention. If a patent does not give adequate notice about its boundaries, then the inventor has not kept her end of the patent bargain, and her exclusionary assertion of the patent is no longer a protection of her own rights against encroachment, but is rather an illegitimate encroachment on the rights of others. Thus, the patent holder's argument from trespass is in tension with the alleged infringer's—indeed, society's—argument from contract.

The practical effect of this tension on direct infringement is that the delineation of clear boundaries in the patent right is the more important aspect of patent notice, as the boundaries of the patent are what define whether infringement has taken place at all. The patent bargain, for its part, is presumed to be fulfilled because the law itself presumes that an issued patent is valid.⁵⁸ Moreover, in a regime that is widely believed to impose strict liability for direct infringement, without regard to prior knowledge of the patent or intent to commit infringement, proper boundary notice bears the heavy burden of legitimating the exclusionary power of patents against the public.

2. Notice of Claim Scope

Evaluating boundary notice is an exercise in construing patent claims⁵⁹ as the boundaries of patent rights reside in the claims of a patent.⁶⁰ Claims

⁵⁶ David Fagundes, *Property Rhetoric and the Public Domain*, 94 MINN. L. REV. 652, 677 (2010).

⁵⁷ Tal Kastner, *The Persisting Ideal of Agreement in an Age of Boilerplate*, 35 LAW & SOC. INQUIRY 793, 796–97 (2010).

⁵⁸ 35 U.S.C. § 282. The party asserting invalidity bears the burden of overcoming the presumption by clear and convincing evidence, even when offering evidence that was not before the USPTO during examination. See *Microsoft Corp. v. i4i Ltd. Partnership*, 131 S. Ct. 2238, 2244 (2011).

⁵⁹ *Trading Technologies Intern., Inc. v. Open E Cry, LLC*, 728 F.3d 1309, 1319 (Fed. Cir. 2013).

that do not lend themselves to construction *ex ante*⁶¹ reflect poor boundary notice,⁶² a problem that is particularly acute where it requires expensive litigation to adjudicate the boundary of the patent right.⁶³ To be sure, the fact of litigation is not conclusive of notice failure, nor even necessarily of uncertainty more generally. Patent litigation proceeds for a variety of reasons including high value in the invention⁶⁴ and economic calculations favoring efficient infringement⁶⁵ as well as uncertainty about whether the patent is valid or infringed.⁶⁶ Nevertheless, where so-called “fuzzy

⁶⁰ *Lighting Ballast Control LLC v. Philips Electronics North America Corp.*, No. 2012–1014, 744 F.3d 1272, 1280 (Fed. Cir. 2014) (en banc) (observing that a patent claim “sets the boundaries of an exclusionary right good against the world at large”).

⁶¹ The amenability of patent claims to being construed is the patent “definiteness” requirement of 35 U.S.C. § 112(b). In recent years, the standard for definiteness had been that a claim, read in view of the specification and prosecution history, is indefinite only if it “is insolubly ambiguous, and no narrowing construction can properly be adopted.” *Exxon Research and Engineering Co. v. U.S.*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). The Supreme Court very recently rejected this “insolubly ambiguous” standard and held that a claim to be definite must “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, No. 13–369, slip. op. at 11 (Sup. Ct. June 2, 2014).

⁶² See Harry Surden, *Efficient Uncertainty in Patent Interpretation*, 68 WASH. & LEE L. REV. 1737, 1772–74 (2011) (relating the susceptibility of patent claims to unique, or at least manageable, determination with the sufficiency of notice provided by the patent).

⁶³ Peter S. Menell & Michael J. Meurer, *Notice Failure and Notice Externalities*, 5 J. LEGAL ANALYSIS 1, 5–6 (2013).

⁶⁴ See generally John R. Allison et al, *Valuable Patents*, 92 GEO. L.J. 435 (2004) (discussing the relationships among the value of inventions, the value of patents, and the assertion of patents in litigation to appropriate value).

⁶⁵ See Ted Sichelman, *Purging Patent Law of “Private Law” Remedies*, 92 TEX. L. REV. 517, 557 (arguing that substantial disagreement over patent validity and scope coupled with high transaction costs in *ex ante* license negotiation may make infringement the economically efficient choice). Professor Sichelman compares this to efficient breach in contract theory. *Id.* (citing RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 119–21 (7th ed. 2007)).

⁶⁶ See generally Alan C. Marco & Saurabh Vishnubhakat, *Certain Patents*, 16 YALE J.L. & TECH. 103 (2013) (surveying the sources and implications of uncertainty about the validity and infringement of patents, and estimating the market value of resolving that uncertainty through adjudicative litigation). See also Jay Pil Choi, *Patent Litigation as an Informational-Transmission Mechanism*, 88 AM. ECON. REV. 1249 (1998) (framing the dynamics of market entry as an externality of patent validity information revealed in litigation).

boundaries”⁶⁷ result in patent scope that is *de facto* broad⁶⁸ and the exclusionary right is strong and property-like—stronger, in fact, if strict liability be the rule—there, the increased risk of infringement can aggravate the externalities that strategic litigation generates.⁶⁹

Framing boundary notice with respect to consistency in claim construction is only one task in generating certainty about the scope of patent rights, a task that the Federal Circuit in *Lighting Ballast Control v. Philips Electronics* endorsed as a kind of “horizontal certainty” of great importance to the market.⁷⁰ To supply this interpretive uniformity through *de novo* appellate review of claim construction does create “vertical uncertainty” about the outcomes of individual patent litigations, though the *Lighting Ballast* court appears to have accepted amicus representations that such vertical uncertainty costs are minimal.⁷¹ Thus, these two desired forms of certainty about patent claim scope correspond, respectively, with

⁶⁷ Professor Meurer has helped popularize this term in the debate over patent notice. See, e.g., Menell & Meurer, *supra* note 63, at 12; BESSEN & MEURER, PATENT FAILURE, *supra* note 48, *passim*; Michael J. Meurer, *Patent Examination Priorities*, 51 WM. & MARY L. REV. 675, 701–03 (2009).

⁶⁸ Uncertainty in boundaries results in effectively broad boundaries due to risk aversion about the outcomes of patent litigation. See generally Damon C. Andrews, *Why Patentees Litigate*, 12 COLUM. SCI. & TECH. L. REV. 219 (2011) (arguing that the cost and risk of patent litigation have diminished the value of traditional remedies such as damages and injunctions, leaving patentees to plan deliberately around a likely up-front settlement). See also Jay P. Kesan & Andres A. Gallo, *Why “Bad” Patents Survive in the Market and How Should We Change?—The Private and Social Costs of Patents*, 55 EMORY L.J. 61, 68–69 (2006) (using a game-theoretic model to compare quantitatively the litigation costs and risks as between plaintiff and defendant—and finding that even demonstrably invalid patents can survive in the market as a result).

⁶⁹ Sichelman, *supra* note 65, at 384 (arguing that such litigation “mak[es] the damage award or injunction value to the patentee inefficiently high relative to the social value of commercialization”). See also Mark A. Lemley & Carl Shapiro, *Patent Holdup And Royalty Stacking*, 85 Tex. L. Rev. 1991, 2009–10 (2007) (arguing that where a patent owner has the ability and legal right “to capture value that has nothing to do with its invention,” then the threat of litigation that it can exert results in economically inefficient disincentives for innovation by other, allegedly infringing firms that have often already sunk significant investments into research and development themselves).

⁷⁰ *Lighting Ballast*, 744 F.3d at 1288 (citing Brief of Amici Curiae Cisco Systems, Inc., Dell Inc., EMC Corporation, Intel Corporation, SAP America, Inc., and SAS Institute Inc. in Support of Neither Party, Lighting Ballast Control LLC v. Philips Electronics North America Corp., No. 2012-1014, at 19 (Fed. Cir. Jun. 4, 2013)).

⁷¹ *Id.* at 1288–89.

precise boundary notice resulting in horizontal certainty about how the market understands a given patent claim, and with accurate boundary notice resulting in vertical certainty about how a given patent claim fares in a particular litigation.⁷² Of these, precision in boundary notice would seem to be the greater economic and systemic value, corresponding as it does to greater *ex ante* certainty around which to make investments, conduct research and development, and commercialize inventions. If so, then for purposes of boundary notice, the valuable certainty of precision largely trumps the costly pursuit of accuracy.⁷³

Accordingly, fostering greater precision in the boundary notice of patent claims has commanded significant attention both in the literature and in governmental efforts at reform, particularly since the Supreme Court's 1996 decision in *Markman v. Westview Instruments* holding that patent claim construction is an issue of law⁷⁴ and giving rise to the ubiquitous and contentious *Markman* proceedings early in patent lawsuits.⁷⁵ In the literature, notable recent proposals include the

⁷² Cf. Oskar Liivak, *Rescuing the Invention from the Cult of the Claim*, 42 SETON HALL L. REV. 1, 42 (2012) (characterizing patent claims as proxies for the inventions that they protect). Professor Liivak cogently explains that the requirement against claim indefiniteness (corresponding here to the boundary notice function) ensures that claims are precise proxies for the invention, and the requirements for adequate disclosure in patents (corresponding here to the teaching function) ensure that the claims are accurate proxies.

⁷³ But see *Lighting Ballast*, 744 F.3d at 1296 (O'Malley, J., dissenting). Joined by Chief Judge Rader and Judges Reyna and Wallach, Judge O'Malley observed that the horizontal certainty purportedly offered by consistent claim construction through *de novo* appellate review requires finality (i.e., vertical certainty) in individual judgments. As a result, Judge O'Malley argued, *Lighting Ballast* and its affirmation of *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448 (Fed. Cir. 1998) (en banc), tend to undercut certainty, discourage settlement, and foster litigation through the final appeal.

⁷⁴ See generally *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996),

⁷⁵ Though *Markman* itself does not require a particular timing for claim construction within the life cycle of patent litigation, courts have settled on a practice of construing claims after at least some fact discovery but still early enough to promote settlement in view of the issued claim construction ruling. See Rebecca N. Eyre, Joe S. Cecil & Eric Topor, *Patent Claim Construction* 16–17 (Fed. Judicial Ctr. Feb. 2008), available at [www.fjc.gov/public/pdf.nsf/lookup/patclaim.pdf/\\$file/patclaim.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/patclaim.pdf/$file/patclaim.pdf). The practice of premising claim construction on fact discovery is appropriate given the regularity with which courts “benefit from explanation of the technology and the instruction of treatises” and from “experts in the science or technology . . . in understanding the meaning and usage of a claim term.” *Lighting Ballast*, 744 F.3d at 1284–85.

development or greater use of technical dictionaries and USPTO-wide or examination art unit-wide glossaries to reduce the information costs that patent examiners must incur in evaluating applications for patent.⁷⁶ Given the widespread identification of boundary notice problems with patents on software-related inventions,⁷⁷ academic proposals have also focused on issues particularly important to software patent litigation, such as functional claiming,⁷⁸ and on reforms that can disproportionately improve the quality of software patents, such as the USPTO's new post-grant review powers under the America Invents Act.⁷⁹ Notably, some of the most prominent of these discussions expressly stop short of abolishing software patents altogether and argue persuasively against industry-specific rules for patent protection.⁸⁰ Likewise in government, the White House Task Force on High-Tech Patent Issues has recently directed an executive action toward "tightening functional claiming" in patents⁸¹ through, *inter alia*, the use of claim glossaries in the specifications of applications for patent.⁸² The recent report of the Federal Trade

⁷⁶ Lee Petherbridge, *Positive Examination*, 46 IDEA 173, 198 (2006).

⁷⁷ See, e.g., James Bessen & Michael J. Meurer, *The Direct Costs From NPE Disputes*, 99 CORNELL L. REV. 387, 391–94 (2014); Arti K. Rai, *Improving (Software) Patent Quality through the Administrative Process*, 51 HOUS. L. REV. 503, 504–06 (2013).

⁷⁸ See, e.g., Kevin Emerson Collins, *Patent Law's Functionality Malfunction and the Problem of Overbroad, Functional Software Patents*, 90 WASH. U. L. REV. 1399 (2013); Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905 (2013).

⁷⁹ See Rai, *supra* note 77.

⁸⁰ E.g., DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* 157–58 (2009); Michael Risch, *Everything Is Patentable*, 75 TENN. L. REV. 591 (2008); ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* 198 (2004). But see Joshua D. Sarnoff, *Patent-Eligible Inventions after Bilski: History and Theory*, 63 HASTINGS L.J. 53 (2011); Pamela Samuelson, *Benson Revisited: The Case against Patent Protection for Algorithms and Other Computer Program-Related Inventions*, 39 EMORY L.J. 1025 (1990).

⁸¹ See The White House, Office of the Press Secretary, *FACT SHEET: White House Task Force on High-Tech Patent Issues*, available at www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues (June 4, 2013).

⁸² See generally United States Patent and Trademark Office, *Glossary Initiative*, available at www.uspto.gov/patents/init_events/glossary_initiative.jsp (last accessed Mar. 26, 2014). In fact, the USPTO's exploration of requiring applicant glossaries

Commission on aligning patent notice with competition policy has also identified boundary difficulties rooted in functional claiming and in other causes such as variation of technical nomenclature and the patent system's institutional preference for deferring the resolution of ambiguity in patent rights.⁸³

The vigor and scope of these debates and proposals reflect the high stakes of failure in boundary notice and emphasize the policy challenge that patent law must resolve if direct infringement continues to be regarded mistakenly as a strict liability offense whose principal justification resides in providing adequate notice to the public about the boundaries of patent rights. Conversely, a doctrine of direct infringement that properly accounts for the relevant intent of alleged infringers can offer both powerful new solutions to the current patent policy debate as well as a theoretical underpinning for existing proposals that are, thus far, pragmatic departures from the legal theory of patent infringement.

II. A THEORY OF RELEVANT INTENT

The thrust of Part I has been that the law of direct patent infringement is incorrect to conclude that disregarding any knowledge of a patent or any intent to infringe the patent is synonymous with strict liability, as this conclusion ignores an additional relevant inquiry: whether the alleged infringer intended to perform an act that constitutes infringement. Part II argues that direct infringement doctrine should expressly inquire into this relevant intent, and that such an inquiry follows from well-understood tort principles that connect purposive action to liability in tort.

predates the June, 2013, White House announcement and has been part of a policy agenda directed toward patent quality more generally. *See Request for Comments on Preparation of Patent Applications*, 78 Fed. Reg. 2960 (Jan. 15, 2013). The response to these proposals, including the claim glossary requirement, has been mixed. *Compare* Comments of Google Inc. (supporting glossary usage as a source of efficiency and improved claim clarity) *and* Comments of Public Knowledge and the Electronic Frontier Foundation (same), *with* Comments of IBM Corporation (expressing skepticism about glossary usage due to burdens of time and cost as well as the potential for downstream narrowing effects on claims) *and* Comments of Robert R. Sachs (critiquing, *inter alia*, the potential in glossary usage for additional strategic behavior in patent prosecution).

⁸³ *See* FED. TRADE COMM'N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 80–86 (2011).

A. TORT AND THE EXERCISE OF AGENCY

The exercise of agency through purposive action has increasingly become an explicitly theorized basis for the corrective justice that tort offers. In brief, the argument from purposive action in justifying tort liability regards the exercise of agency as a necessary condition,⁸⁴ or at least a normatively appropriate one,⁸⁵ in order to ensure that tort law adequately “secures favorable conditions for the exercise of our rational agency.”⁸⁶ These themes are apparent in the roles that intent and the appreciation of consequences have implicitly played in the historical development of tort law.

1. A Brief History of Tort

Tort originated in two common law writs: the writ for the action of trespass and the writ for the action of trespass on the case.⁸⁷ The two causes of action distinguished between forcible and direct injury (trespass) and indirect and consequential injury (case).⁸⁸ Trespass came first,⁸⁹ and

⁸⁴ See Jules L. Coleman, *The Practice of Corrective Justice*, 37 ARIZ. L. REV. 15, 26 (1995) (arguing that “the claims of corrective justice arise only with respect to losses occasioned by human agency” notwithstanding specific disagreements about the relevant limitations, conditions, or importance of such agency); John C.P. Goldberg, *The Constitutional Status of Tort Law: Due Process and the Right to a Law for the Redress of Wrongs*, 115 YALE L.J. 524, 609 (2005) (observing that “tort law, by articulating and enforcing relational duties, treats actors as agents who are responsible to others for the consequences of their actions”).

⁸⁵ Tony Honoré, *Responsibility and Luck*, 104 LAW Q. REV. 530, 531, 539–41 (1988) (advancing an “outcome-responsibility” argument that choosing is a necessary act of agency, that exercising agency requires accepting the consequences of choices, and that normatively allocating liability for consequences is respectful of human agency).

⁸⁶ Gregory C. Keating, *Strict Liability and the Mitigation of Moral Luck*, 2 J. ETHICS & SOC. PHIL. 1, 11 (2006).

⁸⁷ JOHN W. SALMOND, *THE LAW OF TORTS: A TREATISE ON THE ENGLISH LAW OF LIABILITY FOR CIVIL INJURIES* 155 (1907), available at www.books.google.com/books?id=5AA0AAAAIAAJ. These actions came to be known simply as “trespass” and “case,” respectively.

⁸⁸ *Id.* at 155–56. This conceptual focus on degrees of causation was altogether different from the later interest in the existence and degree of the tortfeasor’s intentions. *Id.* at 157.

⁸⁹ See 3 THOMAS ATKINS STREET, *THE FOUNDATIONS OF LEGAL LIABILITY: A PRESENTATION OF THE THEORY AND DEVELOPMENT OF THE COMMON LAW* 248–51

its emphasis on forcible and direct injury reflects the criminal-law origin of the action for trespass, which emerged to remedy acts “done by force and arms against the king’s peace.”⁹⁰

Though the writs for trespass and case focused on direct versus indirect causation of the plaintiff’s injury rather than on the defendant’s intent, intent was nevertheless important to the development of trespass and case as actions in tort. For example, the existing action of novel disseisin had been available when an intrusion onto land led to a one’s dispossession of the land⁹¹ or even to quiet enjoyment of it.⁹² The action required a competing claim of interest beyond mere intrusion, and making *this* distinction was, indeed, an inquiry into the alleged wrongdoer’s intent.⁹³ Such intent-based bifurcations also existed as between criminal larceny and civil recovery of chattels and between criminal felonious assault and minor civil batteries.⁹⁴

Once established, the writs for trespass and case only gradually shifted from a distinction of causal sequence to the modern distinction between conduct that is intentional and conduct that reflects a lower degree of purposive action, such as a negligent omissions.⁹⁵ The shift, moreover, was not a one-to-one correspondence: a writ of trespass could lie even for negligent injuries so long as they were direct, whereas indirect injuries required an action on the case even if the injuries were intentionally inflicted.⁹⁶ Regardless, from its earliest days, tort law has recognized in one way or another differentiable levels of intent reflecting purposive actions behind alleged bad acts, and has translated those differences into legal distinctions.

(1906), *available at* www.books.google.com/books?id=kgs9AAAAIAAJ (tracing the emergence of trespass on the case from the earlier action for trespass through Parliament’s exercise of the 1285 Statute of Westminster II, which granted it the right to issue new writs and thereby create new legal rights in the King’s common law courts).

⁹⁰ *Id.* at 229–30.

⁹¹ FREDERICK POLLOCK & FREDERIC W. MAITLAND, 2 THE HISTORY OF ENGLISH LAW BEFORE THE TIME OF EDWARD I 44 (2d ed. 1899), *available at* www.books.google.com/books?id=c_YyAAAAIAAJ.

⁹² *See id.* at 34 (discussing the medieval concept of “seisin” both as possession and enjoyment protected by the action for disseisin, or dispossession).

⁹³ STREET, *supra* note 89, at 227.

⁹⁴ *Id.* at 228–29.

⁹⁵ WILLIAM L. PROSSER, HANDBOOK OF THE LAW OF TORTS 37–38 (1941).

⁹⁶ *See, e.g., Leame v. Bray*, 3 East 593 (1803).

2. Gradations of Tortious Intent

The transition to modern intention-based tort law increasingly recognized two important principles. First, pure accident should generally not form the basis of liability, and at least some wrongful intent or some failure to exercise due care should be necessary.⁹⁷ Second, the degree of liability imposed should be commensurate with the degree of purposive action, and the appreciation of its consequences, that the law can attribute to an alleged wrongdoer in having committed the tort. Thus, liability ought to be mildest for conduct that is inadvertent (though still negligent by the relevant standard of care), harsher for conduct that disregards likely effects, harsher still for conduct that is intentional but without malice, and harshest for conduct that is animated by malicious intent.⁹⁸

The importance of purposive action and appreciation of consequences is further evident in modern tort law's definition of intent itself, which is to have acted in order to accomplish a result or to have believed that the result was substantially certain to follow.⁹⁹ Intent, thus defined, informs all the torts that require high purposive action and appreciation of consequences, including invasions of personhood such as battery,¹⁰⁰ assault,¹⁰¹ and false imprisonment¹⁰² as well as invasions of personal property such as trespass to chattels¹⁰³ and conversion.¹⁰⁴ This definition of intent also informs trespass to land,¹⁰⁵ the tort most often analogized to patent infringement.¹⁰⁶

⁹⁷ PROSSER, *supra* note 95, at 39.

⁹⁸ *Id.* at 39–40.

⁹⁹ Compare RESTATEMENT (SECOND) OF TORTS § 8A (1965) (“The word ‘intent’ is used throughout the Restatement of this Subject to denote that the actor desires to cause consequences of his act, or that he believes that the consequences are substantially certain to result from it.”) with PROSSER, *supra* note 95, at 40 (“A person intends a result when he acts for the purpose of accomplishing it, or believes that the result is substantially certain to follow from his act.”)

¹⁰⁰ RESTATEMENT (SECOND) OF TORTS §§ 13, 18 (1965)

¹⁰¹ *Id.* § 21–34.

¹⁰² *Id.* § 35–45A.

¹⁰³ *Id.* §§ 216–222.

¹⁰⁴ *Id.* §§ 222A–242.

¹⁰⁵ *Id.* § 158.

¹⁰⁶ See *supra* Part I.B.1 (discussing the trespass metaphor of patent infringement). See generally Mossoff, *supra* note 54 (critiquing on theoretical and empirical grounds the comparison of trespass to land with all encroachments upon the patent right).

3. The Case of Trespass to Land

Canonically, every form of trespass to land requires some level of intent. Unauthorized entry with intent creates liability even if the possessor of the land suffers no harm.¹⁰⁷ Accordingly, mistake is no defense, and with one exception, even a reasonable contrary belief of law or fact does not excuse liability.¹⁰⁸ Entry based upon a lower level of intent, such as reckless or negligent conduct, creates liability if it causes the possessor of the land a recognized harm.¹⁰⁹ Likewise, an entry that is unintentional and non-negligent does not create liability even if the possessor suffers a resulting harm.¹¹⁰

It is worth examining whether this common law framework reflects a normative principle that a given level of intent is *necessary* to justify a given level of liability, or merely that a given level of intent is *sufficient* to justify a given level of liability. That is, if these different levels of intent are necessary to justify their respective levels of land trespass liability, then the most stringent liability, one imposed without regard to harm, may arise only from an intentional trespass to land; negligence or even recklessness will not do. Likewise, trespass that is both unintentional and accidental cannot support liability even where harm has occurred; recklessness or at least negligence is necessary. Conversely, if these different levels of intent are merely sufficient but not necessary to justify their respective levels of liability, then diminished intent or even an absence of intent may support liability. By their own terms, the principles of common law trespass to land refute the latter reading. Absence of intent cannot support any liability for trespass to land—that is to say, trespass to land is not a strict liability tort—and diminished intent such as recklessness or negligence cannot support liability without regard to harm.¹¹¹ For trespass to land, therefore, the different levels of intent are not merely sufficient, but normatively necessary to justify a commensurate

¹⁰⁷ RESTATEMENT (SECOND) OF TORTS § 158.

¹⁰⁸ RESTATEMENT (SECOND) OF TORTS § 164. A mistake of law or fact may excuse liability when the conduct of the possessor induces such a mistake.

¹⁰⁹ RESTATEMENT (SECOND) OF TORTS § 165 (liability under this principle also arises where the intruder is engaged in an abnormally dangerous activity).

¹¹⁰ RESTATEMENT (SECOND) OF TORTS § 166 (this exemption from liability does not apply where the intruder is engaged in an abnormally dangerous activity).

¹¹¹ See *supra* notes 5–6 and accompanying text.

level of liability. In fact, this necessity is in accord with the principle of commensurability that Professor Prosser identified as to torts generally.¹¹²

Importantly, the relevant inquiry for trespass to land at each level on this commensurability scale is not an intent to violate the possessor's rights nor even any knowledge that such rights exist, but simply an intent to perform the intrusive act: enter the land.¹¹³ So also for direct patent infringement, the relevant intent is to perform the infringing act: make, use, offer for sale, or sell the patented invention.

The analogy between trespass to land and patent infringement has long persisted in the law as a descriptive matter,¹¹⁴ but the normative relevance of trespass to the patent system is an issue of ongoing debate. So although tort law's principle of commensurability, between liability for the tort and the level of purposive intent animating the tort, is not limited to trespass, the prevalent application of trespass to patent infringement warrants discussion about the continuing suitability of this analogy.

Indeed, even in their critique of patents for provide less clear notice than the real property trespass system would tolerate, Professors Bessen and Meurer consider trespass doctrine to be quite relevant to patent infringement. Their critique assumes that property rights such as over land present a useful economic benchmark for how property ought to function, especially as to the right of excluding others.¹¹⁵ Thus, their argument finding notice failure in patents is not that real property has no lessons for the patent system.¹¹⁶ In fact, as to liability, they see a "crucial" similarity between the two legal regimes in disregarding knowledge or intent for determining liability:

¹¹² Prosser stated the principle quite broadly that "regardless of the form of the action, there should be no liability for pure accident." *See supra* notes 97–98 and accompanying text.

¹¹³ RESTATEMENT (SECOND) OF TORTS § 164, comment (a).

¹¹⁴ *See supra* note 54 and accompanying text. *See also Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 607 (1950) (explaining in the language of real property surveying that a patent claim "provides the metes and bounds of the right which the patent confers") (emphasis added); *Hovey v. Henry*, 12 F. Cas. 603, 604 (C.C.D. Mass. 1846) (No. 6,742) (similarly explaining that the inventor "holds a property in his invention by as good a title as the farmer holds his farm and flock").

¹¹⁵ *See generally* BESSEN & MEURER, *supra* note 48, at 29–45 (drawing comparisons between the respective economics of tangible property rights and patent rights).

¹¹⁶ *Id.* at 30 (asserting that "the economics of property has valuable lessons for the economics of patents")

A trespasser is still liable regardless of whether she was mistaken about a property line or took care to avoid trespass. Similarly a technology-adopter is still liable for patent infringement regardless of whether she independently invented, or made a good-faith effort to avoid intruding on someone's patent rights.¹¹⁷

Yet this comparison, correct so far as it goes, simply restates the conventional strict liability view of patent infringement¹¹⁸ while ignoring the relevant intent of an alleged infringer—or, indeed, of an alleged trespasser.¹¹⁹ Instead, Bessen and Meurer conclude that the patent system is not specific enough in delineating boundaries to justify property rights akin to those which guard against trespass to land.¹²⁰

There is some force to the counterargument that Bessen and Meurer's indeterminacy critique is unduly reductive of real property, e.g., their contrast between the scope of real property rights and the scope of patent rights:

The scope of tangible property is relatively easy to define in terms of physical attributes. For example, the scope of land rights is defined by a boundary traced on the earth. Defining the scope of patent rights is extremely difficult, because it is hard to draw a boundary around an idea.¹²¹

The full scope of a right in real property consists of temporal and functional boundaries in addition to physical ones, and the scope of an estate in real property is not captured solely, or even primarily, by a fence around land.¹²² Rather, defining rights of possession, use, and disposition, future interests, etc., is the greater task of real property, and in that

¹¹⁷ *Id.* at 31.

¹¹⁸ *See supra* Parts I.A.1–I.A.2.

¹¹⁹ As previously discussed, there is no trespass to land where the unauthorized entry was unintentional and non-negligent. *See supra* note 110 and accompanying text.

¹²⁰ BESSEN & MEURER, *supra* note 48, at 46–72.

¹²¹ *Id.* at 32. Similarly, Professor Chiang has found the boundaries of patent rights lacking in clarity by comparison to the stability of fences around real property. *See* Tun-Jen Chiang, *Fixing Patent Boundaries*, 108 MICH. L. REV. 523, 527–34 (2010).

¹²² Mossoff, *Trespass Fallacy*, *supra* note 54, at 1698–99. Professor Mossoff argues that comparing patent indeterminacy to land trespass alone is a logical fallacy in the conceptual sense, as it commits a category mistake. *Id.* at 1696–1704. He adds that the supposed clarity of notice as a bulwark against trespass to land is also unverified as an empirical matter. *Id.* at 1704–10.

exercise, construing the terms of wills, deeds, and similar documents is much like construing patent claims.¹²³

Yet, this counterargument does little more than reduce the scope of patent indeterminacy to be evaluated, leaving open a more limited analogical role for trespass. Trespass has just such a role to play as to the specific doctrine of direct patent infringement.¹²⁴ In fact, real property offers a variety of examples that relevant intent is necessary to create liability for trespass to land.

Perhaps the simplest case of non-trespass for inadequate relevant intent is falling by accident onto another's land. For example, in *Puchlopek v. Portsmouth Power Co.*, a schoolboy had died when he slipped and his arm entered between two pickets of the fence that enclosed a transformer station, coming in contact with a high-voltage wire.¹²⁵ Though the jury at trial accepted the power station's defense that the boy was a trespasser, the Supreme Court of New Hampshire disagreed, finding that the boy's arm entered onto the power station's land involuntarily and so could not constitute trespass.¹²⁶ Quite apart from whether the boy intended to commit trespass or knew who owned the power station, he simply had not intended to enter the land.¹²⁷

Trespass also fails where a third party physically forces the would-be trespasser either to enter the land or to remain there. Thus, in *Hayes v. Bushey*, the Supreme Court of Maine held that a truck driver who had left the highway and crashed into a building was not liable because he had been driving lawfully with due care, and had been forced off the road by another driver's car.¹²⁸ Conversely, in *Feiges v. Racine Dry Goods Co.*, the owner of a dry goods store had been unable to leave the building to which his lease was due to expire because a picket line of striking employees had blocked all entries and exits.¹²⁹ The Supreme Court of

¹²³ Mossoff, *Trespass Fallacy*, *supra* note 54, at 1699–1700.

¹²⁴ See Vishnubhakat, *Cognitive Economy*, *supra* note 53 (arguing that, rather than generalizing up to the level of estate boundaries as Mossoff suggests, the patent indeterminacy debate should “ask what subsidiary doctrine of patent law is commensurate in analytical scope with the doctrine of trespass in real property”—and proposing direct patent infringement).

¹²⁵ 136 A. 259, 259 (N.H. 1998).

¹²⁶ *Id.* at 260.

¹²⁷ *Id.*

¹²⁸ 196 A.2d 823, 824 (Me. 1964).

¹²⁹ 285 N.W. 799, 799–800 (Wis. 1939).

Wisconsin found no trespass, holding that although the store owner had physically remained past his permission to do so, he had no intent to stay and was prevented from leaving by “stress of circumstances.”¹³⁰

These cases reflect settled common law property principles requiring an intent to enter land in order for trespass liability to arise. Just as an action for trespass protects a real property right against a direct invasion of the underlying subject of the right (the land), so also does an action for direct infringement protect a patent right from direct invasion of the underlying subject of that right (the invention). In operationalizing that analogous role, the theory of relevant intent draws much from the history and principles of trespass to land.¹³¹

Though largely ignored and untheorized by patent law, the relevant intent inquiry also comports with the language of the Patent Act and provides potential resolution for an important practical debate currently taking place in patent infringement law.

B. RELEVANT INTENT IN PATENT INFRINGEMENT

However well-grounded the doctrine of relevant intent may be in common law tort principles, it must rest on the statutory foundations of the U.S. patent system. In fact, not only does the text of the direct patent infringement statute support an inquiry into relevant intent, but federal appellate case law on statutory interpretation confirms the textual argument.

1. The Statutory Basis for Relevant Intent

The Patent Act regards as a direct infringer . . . whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor. . .¹³²

The use of four transitive verbs—“makes,” “uses,” “offers,” and “sells”—to specify the set of infringing acts is consistent with requiring purposive action on the part of an alleged infringer. The level of purpose

¹³⁰ *Id.*

¹³¹ *See supra* Part II.A.

¹³² 35 U.S.C. 271(a).

may be as minimal as seeking to accomplish the natural result of the act itself or to believe that such a result is substantially certain to follow, e.g., the alleged infringer must seek to accomplish the result of selling something: the sale of the thing. Whether the alleged infringer was additionally mistaken or wholly ignorant of the act's legal consequences is neither necessary nor sufficient for determining liability. Indeed, this is the very conception of intent in tort law.¹³³

As a matter of statutory construction, federal courts have similarly read the use of transitive verbs in statutes as calling for purposive action. In *Cole v. United States Atty. Gen.*, for example, the Eleventh Circuit upheld the denial of a Jamaican citizen's petition for asylum,¹³⁴ finding that his state criminal conviction in South Carolina was a disqualifying "crime of violence" for deportation purposes.¹³⁵ Following the Supreme Court's instruction in *Leocal v. Ashcroft* that a crime of violence requires a mens rea greater than mere negligence,¹³⁶ the court in *Cole* found that the relevant South Carolina statute making it "unlawful for a person to *present or point* at another person a loaded or unloaded firearm"¹³⁷ suffices because the transitive verb "presenting" refers to "showing or displaying a firearm in a threatening or menacing manner and hence requires an intentional mens rea."¹³⁸

Similarly in *United States v. Hill*, the Sixth Circuit reversed the dismissal of criminal charges of aiding and abetting a gambling enterprise, finding that the so-called "illegal gambling business" statute¹³⁹ may support felony accomplice liability if, but only if, the aider and abettor demonstrates adequate intent.¹⁴⁰ Following its own instruction in *United States v. Bryant* that aiding and abetting as a general matter requires specific criminal intent,¹⁴¹ the court in *Hill* found an appropriate intent

¹³³ See *supra* note 99 and accompanying text.

¹³⁴ 712 F.3d 517 (11th Cir. 2013).

¹³⁵ 18 U.S.C. § 16 (defining a "crime of violence").

¹³⁶ 543 U.S. 1, 9–11 (2004).

¹³⁷ S.C. Code § 16–23–410 (emphasis added).

¹³⁸ 712 F.3d at 528 (internal quotations omitted). More precisely, *Cole* accepted the South Carolina appeals court interpretation of the statute because the Eleventh Circuit independently found that "this interpretation of the active verb is consistent" with more general state supreme court precedent about the elements of the state statute. *Id.*

¹³⁹ 18 U.S.C. § 1955.

¹⁴⁰ 55 F.3d 1197 (6th Cir. 1995).

¹⁴¹ 461 F.2d 912, 920 (6th Cir. 1972).

requirement in the statute’s “six transitive verbs—’conducts, finances, manages, supervises, directs, or owns’”—denoting the actions that the accomplice’s own acts must have promoted in order to be liable.¹⁴²

The Supreme Court in *Flores-Figueroa v. United States* elaborated on this thread of statutory construction, taking it as implicit that a transitive verb in statutory text calls for purposive action, and finding further that an adverb of intentionality that modifies such a verb also modifies both the object of the verb and limitations on the object.¹⁴³ The defendant had been convicted under the federal aggravated identity theft statute, which holds liable one who “*knowingly* transfers, possesses, or uses, without lawful authority, a means of identification of another person.”¹⁴⁴ However, the government had not proven or found it necessary to prove the defendant’s knowledge that the means of identification belonged to another person.¹⁴⁵ Eight members of the Court, including Justices Scalia and Thomas concurring in pertinent part, reversed the conviction and agreed that the statute’s mens rea requirement extended not only to the purposive acts denoted by the transitive verbs (“transfers,” “possesses,” and “uses”), but also to the object of those verbs (“means of identification”) and to the modifier of that object (“of another person”).¹⁴⁶ Justice Alito, for his part, limited his concurrence only to reject an inflexible rule of construction whereby the mens rea requirements of federal criminal statutes might routinely apply to every element of an offense.¹⁴⁷

It seems uncontroversial as a general matter of construction, therefore, that the use of transitive verbs in the direct patent infringement statute calls for purposive action on the part of the alleged infringer, and that the requisite level of purpose be at the minimal standard of tortious intent: to seek to accomplish a making, a using, a selling, or an offering for sale.

¹⁴² 55 F.3d at 1202 (parsing the text of § 1955).

¹⁴³ 556 U.S. 646 (2009).

¹⁴⁴ 18 U.S.C. § 1028A(a)(1) (emphasis added).

¹⁴⁵ 556 U.S. at 648.

¹⁴⁶ See 556 U.S. at 650–54; *id.* at 657 (Scalia, J., concurring in part and concurring in the judgment).

¹⁴⁷ *Id.* at 659 (Alito, J., concurring in part and concurring in the judgment).

2. Relevant Intent and Divided Infringement

Beyond the basic textual argument for requiring purposive action in direct infringement, recent guidance from the Supreme Court on the issue of divided infringement also has important implications for ascribing intent to alleged infringers. In *Limelight Networks, Inc. v. Akamai Technologies, Inc.*, the Court rejected the doctrine that that an alleged infringer who performs only some of the steps of a patented method while encouraging another to perform the remaining steps may be liable for induced infringement even if no one was liable for an underlying direct infringement.¹⁴⁸ The Federal Circuit had held *en banc* that such inducement liability could attach because inducement does not require that the underlying direct infringement have created liability, only that direct infringement have occurred: to satisfy this limited latter condition, it is enough that all the steps of the patented method be performed among the related parties.¹⁴⁹

Thus, divided direct infringement remains an open question. Though the *en banc* Federal Circuit did not address direct infringement liability where the infringement is divided among different actors acting at arm's length,¹⁵⁰ two dissents from that opinion argued that the issue cannot be avoided, for direct and induced infringement are not separable in the way that the majority proposed.¹⁵¹ The Supreme Court's reversal likewise highlighted that Federal Circuit may (and perhaps should) address the direct infringement issue on remand.¹⁵²

¹⁴⁸ 134 S. Ct. 2111 (2014).

¹⁴⁹ *Akamai Technologies, Inc. v. Limelight Networks, Inc.*, 692 F.3d 1301, 1307–09 (Fed. Cir. 2012)

¹⁵⁰ The *en banc* question in *Akamai* was whether direct infringement doctrine should preserve the so-called “single-entity rule” whereby all steps in a patented method must be performed by, or attributable to, a single entity for liability to arise. See *Akamai Technologies, Inc. v. Limelight Networks, Inc.*, 419 Fed. Appx. 989 (Fed. Cir. 2011), granting Combined Petition for Panel Rehearing and Rehearing En Banc of Plaintiff-Appellant Akamai Technologies, Inc., 2011 WL 900104, *7–15 (Feb. 18, 2011).

¹⁵¹ See 692 F.3d at 1319 (Newman, J., dissenting); *id.* at 1337 (Linn, J., dissenting).

¹⁵² See 134 S. Ct. at 2117 (“[a]ssuming without deciding that the Federal Circuit’s holding in *Muniauction* [that the single-entity requirement for direct infringement is appropriate] is correct”); *id.* at 2120 (observing pointedly that “on remand, the Federal Circuit will have the opportunity to revisit the § 271(a) question [that direct infringement requires a single entity] if it so chooses”).

The policy concern of the *en banc* Federal Circuit majority reflects the potentially significant impact of divided infringement upon the role of purposive action in direct patent infringement. The majority sought to abrogate the single-entity rule¹⁵³ because where multiple actors at arm's length "share performance" of the steps in a patented method, "the patentee has no remedy, even though the patentee's rights are plainly being violated by the actors' joint conduct."¹⁵⁴ With divided infringement now necessarily a question of direct infringement,¹⁵⁵ however, true strict liability that disregards any intent whatever cannot furnish the purposive action necessary to "share" performance or to produce "joint" conduct in a meaningful sense.

Put another way, any theory of direct infringement that purports to account for divided infringement must show that legally distinct actors have, indeed, acted with some minimal cooperative purpose so that the law has a principled reason for treating their various partially infringing activities as a collective whole. The actors need not have any joint or individual intent to infringe a patent, nor even any joint or individual knowledge that such a patent exists—but in order to be cooperative, their actions must proceed from a purpose to accomplish a mutually known and intended result. Without this minimal cooperative purpose as to the act itself, any liability for divided direct infringement would necessarily impose a joint penalty upon independent actors who need not have had any notice of each other's conduct.

The following example illustrates the inappropriateness of imposing direct infringement liability collectively on entities who are purposively independent of each other.

- Acme Corp. holds U.S. Patent '816, issued in 2003 and expiring in 2020, whose only claim is directed to a rolling chair assembly method comprising:

¹⁵³ Though the Supreme Court identified the single-entity rule with the decision in *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318 (Fed. Cir. 2008), *Muniauction* had built on the earlier holding in *BMC Resources, Inc. v. Paymentech, L.P.*, 498 F.3d 1373 (Fed. Cir. 2007). The *en banc* Federal Circuit majority in *Akamai* wrote to reverse both *Muniauction* and *BMC*.

¹⁵⁴ 692 F.3d at 1305–06 (maj. op.).

¹⁵⁵ See *supra* notes 143–144 and accompanying text.

- first securing a first terminal end of each of four legs onto a first side of a first two-sided flat surface suitable for sitting;
- then securing a suitable wheel onto a second terminal end of each said leg; and
- finally securing a second two-sided flat surface orthogonally onto a second side of said first two-sided flat surface.
- Since 2004, Betel Inc. of South Carolina has produced floor seats whose assembly practices only the third step of the '816 Patent.
- Since 2010, independent and ignorant of Betel, Cassco Ltd. of Oregon has produced wheeled tables whose assembly practices only the first two steps of the '816 Patent.
- As neither Betel nor Cassco has practiced every step of the patent claim, neither entity alone is liable for direct infringement.¹⁵⁶
- Yet under a doctrine of divided direct infringement that requires no minimal cooperative purpose or relevant intent common to both Betel and Cassco, Acme could hold them jointly liable even though their geographic and temporal separations reflect their purposive independence from each other.

In short, a principled approach to the timely issue of divided patent infringement requires a legal basis for evaluating the alleged infringers' conduct collectively, and that legal basis must establish some minimal cooperative purpose to achieve a mutually known and intended result. The proposed doctrine of relevant intent supplies this necessary purposive action proceeding from well understood tort principles. Importantly, the relevant intent doctrine does not impose any greater requirement, leaving intact the settled patent law that direct infringement does not require knowledge of a patent nor any intent to infringe it.

III. TOWARD A NEW VIEW OF DIRECT INFRINGEMENT

The focus of Part II has been to fill the doctrinal gap identified in Part I regarding direct patent infringement by defining a doctrine of relevant intent that connects purposive action to tort liability, particularly in the unresolved controversy over divided infringement. Part III now places the

¹⁵⁶ See *Dawson Chemical Co. v. Rohm and Haas Co.*, 448 U.S. 176, 188 (noting that direct infringement requires practicing "every single element" of the claimed invention).

relevant intent doctrine in context with larger open questions about patent infringement, and identifies some of the benefits that the doctrine offers in the ongoing patent policy debate.

A. PATENT INFRINGEMENT AS AN INTENTIONAL TORT

The mistaken view that direct patent infringement is a strict liability offense, together with the identification of a precisely defined inquiry into the purposive acts of the alleged infringer, point to a straightforward—though perhaps dissonant—conclusion. The basic act of infringing a patent is an intentional tort.

1. Infringing Acts

In an important way, treating direct infringement as an intentional tort makes little immediate difference. For technology implementers acting in a variety of economic circumstances, the act of making an invention is already purposive. Among simple articles of manufacture, for example, where a patent covers a chair comprising four legs, a seat, and a back, it is unlikely that a manufacturer of stools that comprise four legs and a seat will possess the relevant intent to infringe the patent. To do so, the manufacturer would have to set out to build a stool and unintentionally build a chair. To be sure, more complicated facts abound, particularly in industries that operate at micro- and nano-scale. Such manufacturing operations may, indeed, run afoul of patents either despite designs to the contrary or simply from ignorance. Recent case law addressing such truly inadvertent infringement is discussed in detail *infra*.¹⁵⁷ In the main, however, the deliberate design, antecedent detail, and often high fixed cost of establishing manufacturing operations suggest that an entity will usually have the relevant intent to make an invention that does, or does not, infringe a patent. The relevant intent doctrine does little to disrupt this state of affairs.

Selling and offering for sale are a less straightforward case. The work of sellers and offerors, like that of manufacturers, is undoubtedly purposive at the basic level of intending to sell *something*. Depending on the complexity of the good or service being sold, however, there may or

¹⁵⁷ See *infra* Part III.C.

may not be relevant intent with specific regard to a particular patented invention. For example, the stool manufacturer's distributor surely knows that the goods she is selling are stools rather than chairs. Yet a smart phone manufacturer's distributor may well be unaware that the goods she is selling include chipsets that are based on a reduced instruction set computing (RISC) architecture. If so, she would lack the relevant intent to sell, or offer for sale, such a chipset and would not be liable for infringing a patent that covered such chipsets. Notably, an upstream component vendor that sold chipsets to the smart phone manufacturer likely would not be so ignorant in this regard, hence likely would possess the relevant intent to sell or offer for sale, and so would be liable for infringement, all else equal. This practical importance of an actor's position in the stream of commerce is a sensible result of the relevant intent doctrine, as it tends to create liability among those actors who are well positioned at lowest cost to avoid infringement, and tends to alleviate the risk of liability among those actors who are not so well positioned or for whom the cost of informing themselves of technical details are impractically higher in view of their downstream commercial and non-technical roles as, e.g., distributors or retailers.

Using is the case for which the relevant intent doctrine offers the most powerful flexibility as a doctrinal lever. In part this is because what constitutes use in patent law is itself multiform, but one important set of users for whom relevant intent is a particularly timely doctrinal innovation is end users. End users, who may be broadly understood as the eventual and ultimate consumers of an integrated technology, have been exposed to patent infringement liability at various points in U.S. history. One example is the assertion of dormant agricultural patents against farmers during Reconstruction.¹⁵⁸ Another example is the threat by patent lawyer George Selden, who held a broad patent on automobiles generally, against would-be customers of the Ford Motor Company that to purchase a Model T was to "buy a lawsuit."¹⁵⁹ End users remain no less important in the current debate over patent litigation and patent notice, particularly in cases where patent owners assert their rights against allegedly infringing

¹⁵⁸ Gerard N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809, 1819–25 (2007).

¹⁵⁹ Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 890n.217 (1990).

manufacturers (who are accused of making the patented invention), against allegedly infringing distributors and retailers (who are accused of selling the patented invention), and finally against customers at the end of the stream of commerce (who are accused of using the patented invention).¹⁶⁰

Among the variety of proposals aimed at empowering end users in the face of such patent assertions, two of note include targeted fee shifting for prevailing end users¹⁶¹ as well as an explicit customer-suit exception.¹⁶² Yet some of these are pragmatic departures: fee shifting is an exception to the usual American Rule of each party paying its own way.¹⁶³ Alternatively, they are procedural case management mechanisms: the current customer-suit exception is a relatively obscure common law practice of staying end user litigation until upstream lawsuits against the accused manufacturer have been resolved.¹⁶⁴ By comparison, the relevant intent doctrine offers a direct substantive reply to such end user litigation practices, whatever their prevalence or severity may be as an empirical matter. Whereas manufacturers by virtue of their direct purposive engagement with the making of technologies are likely to possess the relevant intent to make, and whereas sellers or offerors may or may not possess the relevant intent to sell or offer for sale depending on their position in the stream of commerce, end users are quite routinely unlikely to possess the relevant intent to use the kinds of highly integrated inventions that are argued to pose the greatest problems of notice. Accordingly, their lack of relevant intent in such cases would

¹⁶⁰ Gaia Bernstein, *The Rise of the End User in Patent Litigation*, 56 B.C. L. REV. *15–*18 (forthcoming 2014), available at www.ssrn.com/abstract=2440914 (discussing threatened and actual litigation by patent assertion entities against end users). Professor Bernstein argues that patent owners in such cases have no need to cultivate relationships with customers and so are not deterred from asserting their rights in ways that practicing patent owners would be. This, together with a large pool of potential alleged infringers and high likelihood of settling rather than exploring the merits of a litigation at great cost, has led to a proliferation of economically inefficient end user litigation. *Id.* at 16.

¹⁶¹ *Id.* at *48–*60.

¹⁶² Brian J. Love & James C. Yoon, *Expanding Patent Law's Customer Suit Exception*, 93 B.U. L. REV. 1605 (2013).

¹⁶³ See generally John F. Vargo, *The American Rule on Attorney Fee Allocation: The Injured Person's Access to Justice*, 42 AM. U. L. REV. 1567 (1993).

¹⁶⁴ *Rates Tech., Inc. v. N.Y. Tel. Co.*, 1995 WL 438954, at *2 (S.D.N.Y. July 25, 1995).

substantively shield them from liability for the intentional tort of direct patent infringement.

2. Doctrinal Consequences

It has been necessary to refer separately to an underlying relevant intent because patent law separately imposes penalties for infringement that stems from knowledge or reckless ignorance¹⁶⁵ of legal rights or an intent to infringe, whether through willful infringement¹⁶⁶ or through induced or contributory infringement.¹⁶⁷ Where these particular forms of knowledge or intent are unnecessary, patent law has declared strict liability.¹⁶⁸ Yet the definition of intent in the tort law sense is modest enough to fit even what little space remains for purposive action when all other requirements of willfulness, recklessness, or knowledge are gone. In direct patent infringement, as in the rest of tort law, intent denotes only “that the actor desires to cause consequences of his act, or that he believes that the consequences are substantially certain to result from it.”¹⁶⁹

This elementary and overlooked view of intent offers theoretical support for at least two important doctrinal entry points into the debate over boundary notice in the patent system. One is the proper approach to *ex post* claim construction by courts once a patent owner has asserted its rights against alleged infringers, particularly those whose conduct may reside in a zone of uncertainty that is outside the scope of the patented invention but inside the scope of the patent claim language. Another is the recent jurisprudential shift in the doctrine of inherency away from traditional requirements of recognition of the conduct in question, with regard to prior art anticipation as well as to infringement.

¹⁶⁵ Willful infringement had previously required actual knowledge or notice of the patent as articulated by *Underwater Devices*. See *supra* notes 18–22 and accompanying text. The current *Seagate* standard permits a finding of willfulness based on recklessness on the part of the infringer. See *supra* notes 16–17 and accompanying text.

¹⁶⁶ See *supra* notes 16–23 and accompanying text (discussing the role of knowledge and intent in willful infringement).

¹⁶⁷ See *supra* notes 24–30 and accompanying text (discussing the role of knowledge and intent in induced infringement and contributory infringement).

¹⁶⁸ See *supra* Part I.A.1 (discussing what was historically meant by a “strict liability” view of patent infringement).

¹⁶⁹ RESTATEMENT (SECOND) OF TORTS § 8A (1965). See *supra* notes 99–106 and accompanying text.

B. CLAIM CONSTRUCTION

1. Linguistic versus Purposive Construction

First, with respect to claim construction, the relevant intent doctrine provides a conceptual vehicle for courts to engage more transparently in claim construction that is purposive rather than solely linguistic.¹⁷⁰

The U.S. patent system operates in a peripheral claiming regime in which claims describe the outer bounds of the invention, rather than a central claiming regime in which claims describe the core principles of the invention.¹⁷¹ Consistent with the broad remit of this approach to claiming, patent rights are also defined primarily by reference to necessary and sufficient characteristics rather than by reference to exemplars from which the law must subsequently infer the appropriate scope of attendant legal rights.¹⁷² Given this focus on the patent claim as being both denotative of the invention and synonymous with the scope of exclusionary rights,¹⁷³ it is not surprising that construction of patent claims is the essential step in evaluating infringement.¹⁷⁴ As a practical matter, claim construction is frequently outcome-determinative of litigation itself.¹⁷⁵ For all its

¹⁷⁰ For a comprehensive theoretical treatment of the distinction between determining the linguistic meaning of claims (interpretation) and giving legal effect either to that interpreted meaning or to some other normatively appropriate meaning (construction), see Tun-Jen Chiang & Lawrence B. Solum, *The Interpretation-Construction Distinction in Patent Law*, 123 YALE L.J. 530 (2013).

¹⁷¹ See *Warner-Jenkinson*, 520 U.S. at 27n.4 (distinguishing between peripheral claiming and central claiming); Burk & Lemley, *supra* note 51, at 1744–46 (same).

¹⁷² Jeanne Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 731–43 (2009).

¹⁷³ The succinct and oft-cited expression of this principle is Judge Rich’s maxim that “the name of the game is the claim,” i.e., that claims define what is patented and, necessarily, give notice of what infringes and what does not. Giles Rich, *The Extent of the Protection and Interpretation of Claims—American Perspectives*, 21 INT’L REV. INDUS. PROP. & COPYRIGHT L. 497, 499, 501 (1990).

¹⁷⁴ J. Jonas Anderson & Peter S. Menell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 NW. U. L. REV. 1, 16 (2013).

¹⁷⁵ Stephanie Ann Yonker, *Post-Phillips Claim Construction: Questions Unresolved*, 47 IDEA 301, 303 (2007); Kyle J. Fiet, *Restoring the Promise of Markman: Interlocutory Patent Appeals Reevaluated Post-Phillips v. AWH Corp.*, 84 N.C. L. REV. 1291, 1292–93 (2006); Daniel J. Melman, *Post Markman: Claim Construction Trends in the Federal Circuit*, 7 RICH. J.L. & TECH. 34, *2 (2001).

importance, however, claim construction remains a highly contentious practice, not merely between individual litigants who maneuver for a strategically favorable reading of the claims-in-suit, but among courts and commentators who embrace divergent theories of how generally to construe claims, and how not to.

This theoretical debate has two major dimensions. One is procedural and ultimately structural: the allocation of the authority to construe claims with some measure of finality or deference. As the Court explained in *Markman*, the legal conclusion of what claim terms mean has long been a question of law to be reviewed *de novo* on appeal.¹⁷⁶ The *en banc* Federal Circuit in *Cybor* further interpreted *Markman* to mean that claim construction is a pure question of law with no distinct subsidiary questions of fact.¹⁷⁷ Recently, after more than fifteen years under *Cybor*, the Federal Circuit, invoking *stare decisis* in *Lighting Ballast*, once again affirmed claim construction to be a pure question of law.¹⁷⁸ The issue is currently before the Supreme Court in *Teva Pharmaceuticals v. Sandoz*.¹⁷⁹ *Teva* frames the issue as a conflict between a patent-exceptionalist Federal Circuit doctrine that requires *de novo* review of the factual findings that a district court makes in support of its claim construction, and the general command of Federal Rule of Civil Procedure 52(a), which requires review of such factual findings for clear error.¹⁸⁰

The question of appellate deference has important consequences for certainty and stability, though the net effect as between horizontal and vertical certainty is not always clear *a priori*.¹⁸¹ These arguments have

¹⁷⁶ 517 U.S. at 384–85 (recalling that “[t]he first [element of a patent case] is a question of law, to be determined by the court, construing the letters-patent, and the description of the invention and specification of claim annexed to them”) (citing *Winans v. Denmead*, 56 U.S. 330, 338 (1853)).

¹⁷⁷ 138 F.3d at 1455 (finding that “[n]othing in the Supreme Court’s opinion supports the view that the Court endorsed a silent, third option—that claim construction may involve subsidiary or underlying questions of fact”).

¹⁷⁸ 744 F.3d at 1283–86 (addressing and rejecting various criticisms by reference to the precedential value of *Cybor* and the potential tumult of reversing that decision).

¹⁷⁹ *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 723 F.3d 1363 (2013), *cert. granted*, 134 S. Ct. 1761 (Mar. 31, 2014) (No. 13-854).

¹⁸⁰ Petition for Writ of Certiorari, *Teva*, 2014 WL 230926, *i (No. 13-854) (stating the question presented).

¹⁸¹ Compare *Pierce v. Underwood* 487 U.S. 552, 585 (1988) (anticipating greater predictability through *de novo* review in Equal Access to Justice Act cases because courts

special force in patent claim construction,¹⁸² particularly in light of the vigorous debate over certainty in boundary notice for the patent system.¹⁸³ Nevertheless, the procedural allocation of the power to construe is ultimately of second-order importance to the more immediate challenge confronting judges.

That challenge is the substantive question of how to construe patent claims. The Federal Circuit’s authoritative articulation in *Phillips v. AWH Corp.* of claim construction doctrine¹⁸⁴ shed some light on the relative importance of various analytical tools, but left unstated any systematic approach to the actual work of claim construction.¹⁸⁵ This work includes evaluating intrinsic evidence of claim meaning such as the patent specification,¹⁸⁶ prosecution history,¹⁸⁷ and the fate of related and foreign applications,¹⁸⁸ as well as a panoply of extrinsic evidence such as “inventor testimony, expert testimony, dictionaries, and documentary evidence of how the patentee and alleged infringer have used the claim terms.”¹⁸⁹

The animating principle of this approach is fidelity to the linguistic meaning of claim language, but such meaning is often inadequate to arrive at a complete analysis of claims.¹⁹⁰ As a result, courts must make normative judgments about how much legal effect, if any, to give to the linguistic meaning of claims and, by comparison, how much legal effect to give to some other point of reference, such as their understanding of the inventive idea at the core of the patent.¹⁹¹ Indeed, a number of scholars

of appeals would not be obligated to uphold divergent but reasonable district court holdings), with *Conkright v. Frommert*, 559 U.S. 506, 517 (2010) (anticipating greater predictability through deferential review in Employee Retirement Income Security Act cases because employers could rely upon plan administrators rather than “unexpected and inaccurate plan interpretations that might result from *de novo* judicial review”).

¹⁸² See *supra* notes 70–72 and accompanying text.

¹⁸³ See *supra* Part I.B.

¹⁸⁴ 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*).

¹⁸⁵ Peter S. Menell, Matthew D. Powers & Steven C. Carlson, *Patent Claim Construction: A Modern Synthesis and Structured Framework*, 25 BERKELEY TECH. L.J. 711, 718 (2010).

¹⁸⁶ *Id.* at 722–23.

¹⁸⁷ *Id.* at 723.

¹⁸⁸ *Id.* at 723–24.

¹⁸⁹ *Id.* at 725.

¹⁹⁰ Chiang & Solum, *supra* note 170, at 535–36.

¹⁹¹ *Id.* at 565–66.

have advocated for a return to the inventive idea of the patent as a way to manage perceived excesses both in the breadth of patent scope and the breadth of patent assertion. The strongest of these arguments is for an explicit and radical return to central claiming.¹⁹² Relatively milder is for a refocused view of peripheral claims as useful proxies in identifying the invention rather than as necessary synonyms of the invention itself.¹⁹³ The interpretation-construction distinction offers a way to clarify that the task of identifying the invention is often a normative exercise beyond the linguistic meaning of claims.¹⁹⁴ To this line of argument, the relevant intent doctrine contributes further by enabling what is otherwise a desirably transparent but perhaps “politically costly” choice by judges: construing purposively.¹⁹⁵

2. The Role of Relevant Intent

Purposive construction refers to deriving meaning from a document’s text based on the purposes for which the document was constituted, whether the text be of a statute, a contract, or anything else.¹⁹⁶ In the case of patents, purposive construction is the analysis of patent claims with a view to what they exist to protect: the inventor’s invention. In fact, the controversy in *Phillips* was just such a case.

Phillips was nominally about how to understand the term “steel baffle” in the context of Edward Phillips’s invention for a noise-, fire-, and

¹⁹² Burk & Lemley, *supra* note 51, at 1747 (describing their own proposal as a radical, but useful, thought experiment and leaving it an open question whether the benefits of a return to central claiming would outweigh the costs).

¹⁹³ Liivak, *supra* note 72, at 43–44. Professor Liivak’s proposal is a single analytical approach for navigating the embodiments disclosed in a patent. For a more metathetical argument that courts should choose from among various *methodologies* of construing claims in order to reach socially optimal claim scope, see Christopher A. Cotropia, *Patent Claim Interpretation Methodologies and Their Claim Scope Paradigms*, 47 WM. & MARY L. REV. 49, 127–29 (2005).

¹⁹⁴ Chiang & Solum, *supra* note 170, at 566 (cautioning that “to the extent that a judge chooses the linguistic meaning as his lodestar, the linguistic meaning may run out”).

¹⁹⁵ *Id.* at 585. Professors Chiang and Solum refer to construing a patent to save its validity, which is a special case of purposive construction.

¹⁹⁶ For a concise history of purposive construction as a tool for construing written instruments and applying that history to patent construction, see Catherine Ng, *The Purpose of “Purposive Construction”*, 15 I.P.J. 1 (2000).

impact-resistant steel building material, which was particularly suited for deflecting bullets.¹⁹⁷ Phillips was unable to prove infringement by AWH Corporation under a claim construction that the patent did not cover steel baffles that did not deflect bullets because they were oriented in a manner perpendicular to the adjoining wall faces; rather, the patent covered only steel baffles that were oriented at an oblique or acute angle in order to deflect bullets.¹⁹⁸ The *en banc* Federal Circuit divided over whether the linguistic meaning of “steel baffles” in the ’798 Patent was, or was not, limited to those steel baffles which deflect bullets.¹⁹⁹

There is force to the interpretation-construction argument that the majority as well as the dissent in *Phillips* unproductively focused on the linguistic meaning of the term “steel baffles.”²⁰⁰ That term was neither ambiguous nor vague (though perhaps overly broad if given effect in the patent), and the court may instead have articulated transparently that its task was to decide whether and to what extent to give legal effect to this linguistic meaning.²⁰¹ Implicitly—which is to say, opaquely—the majority in *Phillips* adopted a theory of construction that would give effect to the linguistic meaning, whereas the dissent favored the purpose of the invention over the linguistic meaning of the claims.²⁰² Yet within this framework, neither theory of construction is preferable to the other. Distinguishing interpretation from construction is a highly useful, but ultimately descriptive, exercise.

The relevant intent doctrine, too, is amenable to any approach of construction. There is simply nothing in the record of the *Phillips* case that AWH Corporation did not intend to build steel supports containing steel baffles that are perpendicular to the adjoining wall faces and so cannot deflect bullets. Thus, there was clearly relevant intent to do *something* of interest. Whether that something constitutes infringement depends on how the court ultimately construes the claims. However,

¹⁹⁷ U.S. Patent No. 4,677,798.

¹⁹⁸ 415 F.3d. at 1309.

¹⁹⁹ Chiang & Solum, *supra* note 170, at 536n.14 and accompanying text (citing *Phillips*, 415 F.3d. at 1312–19)).

²⁰⁰ *Id.* at 536 (describing the approach of the court as “a fool’s errand” because the true dispute was over whether to “arguably extend the monopoly scope of the patent to something that the patentee had not really invented”).

²⁰¹ *Id.*

²⁰² *Id.* at 569–70.

while conceptually agnostic, the relevant intent doctrine is particularly well suited for purposive claim construction because it mitigates the aversion that courts may have to making their normative choices in claim construction explicit. The *Phillips* dissent, by focusing on its own understanding of what Edward Phillips actually invented rather than on the text of the '798 Patent, clearly and necessarily disrespects the USPTO examination that produced the overbroad patent.²⁰³ Rather than soften this conclusion through a linguistic distortion of what the claim *must mean*, however, it is preferable to engage expressly in a purposive construction that is more clearly justified because the alleged infringer's relevant intent does not extend to making, using, selling, or offering for sale what the patentee's invention actually is. As with the interpretation-construction distinction, this is not to say that a purposive approach is necessarily preferable, only that transparent purposivism is preferable to the other kind, and that the relevant intent doctrine offers a way to be more transparent.

In fact, a basis already exists in the case law for this link between purposive claim construction and relevant intent. Both early and modern examples of relevant intent, including the previously discussed *Pratt v. U.S.*²⁰⁴ and *Pall Corp. v. Hemasure*,²⁰⁵ are examples of purposive claim construction. In *Pratt*, the infringement dispute was clear enough. The asserted patent covered a mechanism that hooked an airplane in flight to a stationary arresting apparatus and thus gradually retarded the airplane's vertical and forward speed to land it at very short distance²⁰⁶ The alleged infringing mechanism on the government's naval aircraft carriers by design hooked an airplane that had landed on the deck and thus retarded only its forward progress.²⁰⁷ To arrive at this technical, factually specific distinction between the patented invention and the allegedly infringing invention, however, the court construed the patent specifically with an eye to naming its purpose and, incidentally, to preserving its validity:

In the instant case, it would not be a proper application of the purpose of the patent laws to construe plaintiff's assumed patent for a device to retard the speed of a plane while still in flight so

²⁰³ *Id.* at 585.

²⁰⁴ See *supra* notes 39–41 and accompanying text.

²⁰⁵ See *supra* notes 42–44 and accompanying text.

²⁰⁶ 43 F.Supp. at 475.

²⁰⁷ *Id.* at 475–76.

broadly as to prevent the development and use by others of a device to stop the roll of a plane after it has touched the landing surface. The two ideas are different. Indeed, plaintiff's asserted novelty lay only in the accomplishment of the former, since the latter was plainly anticipated.²⁰⁸

The court also made plain the connection between its purposive approach to construction and the pragmatic importance of what the defendant intended to do as well as what it did not intend to do:

But because the whole problem arises out of the necessity for landing planes on a surface of limited area, and because the accomplishment of the feat is at best a hazardous one involving great skill, the defendant, desiring to retard the speed of the plane after it has touched the surface, should not be compelled, in order to avoid infringement, to waste a considerable amount of the limited landing area by locating its transverse cables so far forward on the deck that its planes will never engage one of the cables until after they have touched the landing surface.²⁰⁹

Likewise, in *Pall Corp.*, the asserted patent covered a venting system for filtering leukocytes from blood through porous membranes that prevent the passage of air into a filtration chamber.²¹⁰ Like the court in *Pratt*, the court in *Pall Corp.* bounded its construction of the patent by its understanding of the purpose of the invention itself:

We deem the district court's claim construction to be unduly broad. The '321 patent explains that the invention is directed to facilitating the air-driven gravity flow of blood through the leukocyte filter, reducing back pressure and minimizing air contact with the blood after the filtration is complete. The specification describes or suggests no role or location of the "gas outlet comprising a porous medium" other than to remove gas at the outlet of the system while retaining the blood and barring reentry of air. We conclude that the correct interpretation of claim clause [2] requires that the gas outlet porous medium be placed so as to serve that purpose.²¹¹

²⁰⁸ *Id.* at 476 (emphasis added).

²⁰⁹ *Id.* (emphasis added).

²¹⁰ 181 F.3d at 1307–08.

²¹¹ *Id.* at 1310 (emphasis added).

These cases further illustrate the value of the relevant intent doctrine in clarifying the practical consequences of construing patent claims purposively, apart from the merits of purposivism itself.

C. INHERENCY AND THE ANTICIPATION-INFRINGEMENT SYMMETRY

Second, with respect to inherency, the relevant intent doctrine provides a potential resolution for the Federal Circuit’s controversial emerging jurisprudence in the doctrines of both anticipation and infringement.

1. The Anticipation Doctrine

Anticipation is a legal conclusion that a given invention is not novel because the invention was previously patented, described in a printed publication, or in public use.²¹² Regardless of the source of anticipation, the features of the invention as presently claimed must all be present in a single source—the “all elements rule”—for novelty to be destroyed.²¹³ If the elements of the invention are dispersed over two or more prior sources, then the nonobviousness requirement is the appropriate standard for evaluating whether the invention is patentable.²¹⁴ The all elements rule also governs infringement such that an accused device must contain every limitation of an asserted patent claim, either literally or equivalently, in order to infringe the claim.²¹⁵ As this shared use of the all limitations rule reflects, U.S. patent law has long recognized a symmetry between anticipation and infringement.²¹⁶ The usual articulation of this symmetry is, “That which infringes, if later, would anticipate, if earlier.”²¹⁷

²¹² 35 U.S.C. § 102(a). The prior reference may be

²¹³ *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008).

²¹⁴ *See* 35 U.S.C. § 103.

²¹⁵ *TIP Systems, LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1379 (2008).

²¹⁶ *Int’l Seaway Trading Corp. v. Walgreens Corp.*, 589 F.3d 1233, 1239 (Fed. Cir. 2009) (finding it “well established for over a century that the same test must be used for both infringement and anticipation”).

²¹⁷ *Peters v. Active Mfg. Co.*, 21 F. 319, 321 (C.C.S.D. Ohio 1884), *aff’d* 129 U.S. 530, 537 (1889).

2. The Inherency Doctrine

Yet the all elements rule is not the end of the story. To it the courts have added the common law principle of inherency, which holds that although some necessary element may not expressly be identified, the law may still consider the element to be present if it is inherent in the given technology.²¹⁸ Thus, for example in *Abbott Laboratories v. Geneva Pharmaceuticals, Inc.*, the Federal Circuit found inherent anticipation and so invalidated a patent on an anhydrate crystal formulation of a drug for treating hypertension and benign prostatic hyperplasia.²¹⁹ A third party not involved in the litigation had previously sold the compound in the United States, and although none of the parties to those transactions had known which particular anhydrate crystal they were transacting at the time, the court found that product sold had inherently possessed each of the limitations of the asserted patent claim.²²⁰ Accordingly, the sales anticipated the patented invention, and the asserted claim was invalid.²²¹

Importantly, the doctrine of inherency traditionally included a requirement that an inherent element could contribute to anticipation only if people of ordinary skill in the art know or appreciate the inherent element.²²² Thus, for example in *Tilghman v. Proctor*, the Supreme Court upheld a patent on a process for separating natural fats into fatty acids and glycerine by the application of high temperature and high heat to a mixture of natural fats and water.²²³ An earlier steam cylinder had been in use that happened to subject tallow, which was used to lubricate the piston, to a similar combination of high temperature and high heat and thus produced some quantities of fatty acids and glycerine as incidental waste products.²²⁴ The Court declined to find inherency, explaining that the

²¹⁸ For a concise explication of the inherency doctrine in determining anticipation under § 102, see *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268–69 (1991).

²¹⁹ 182 F.3d 1315 (Fed. Cir. 1999).

²²⁰ *Id.* at 1319.

²²¹ *Id.*

²²² *Continental Can*, 948 F.2d at 1268 (requiring that the inherent element “would be so recognized by persons of ordinary skill”). As to what is actually inherent, rather than what is merely probabilistic, the doctrine also requires that “the missing descriptive matter is necessarily present in the thing described in the reference.” *Id.*

²²³ 102 U.S. 707 (1880).

²²⁴ *Id.* at 711.

prior accidental effects that coincided with the patent claims were “never fully understood” and occurred “accidentally and unwittingly . . . without exciting attention.”²²⁵ Accordingly, the Court concluded, a finding of anticipation would be “absurd.”²²⁶

Similarly, in *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, the Supreme Court upheld a patent on an improvement to the field of Fourdrinier paper-making machines.²²⁷ Prior to the patented invention, such machines began to produce defective paper when the rolling woven mesh belt on which the paper was formed moved faster than 500 feet per minute.²²⁸ Inventor William Eibel determined that the reason for this defect was that the mesh belt, known as the wire, was moving more quickly than the raw paper stock, leading to turbulence and rippling in the stock itself.²²⁹ Eibel solved this problem by sharply raising the slope of the wire and thus increasing the downward speed of the stock by the additional gravitational force, so that the wire and stock would move at roughly equal speeds, allowing for both better paper and faster production speeds.²³⁰ The validity of the patent was challenged based on an earlier patent to inventors Barrett and Horne whose invention had similarly raised the slope of the wire for water drainage-related purposes, so that the earlier patent arguably anticipated Eibel’s patent:

[regardless] whether Barrett and Horne perceived the advantage of speeding up the stock to an equality with the wire, yet the necessary effect of their devices was to achieve that result.²³¹

The Court, citing *Tilghman*, reiterated the knowledge requirement for inherency that “accidental results, not intended and not appreciated, do not constitute anticipation.”²³²

²²⁵ *Id.* at 711–12.

²²⁶ *Id.* at 712.

²²⁷ 261 U.S. 45 (1923).

²²⁸ *Id.* at 52.

²²⁹ *Id.*

²³⁰ *Id.* at 52–55.

²³¹ *Id.* at 66.

²³² *Id.*

3. The Role of Relevant Intent

These historical affirmations—that knowledge, recognition, or appreciation of a putatively inherent element in the prior art are necessary to create anticipation and destroy novelty—have also been a doctrinal bulwark against creating liability for truly inadvertent infringement based on a theory of inherency. In *SmithKline Beecham Corp. v. Apotex Corp.*, however, the Federal Circuit dramatically enlarged the scope of inherent anticipation.²³³ As a result, it has created the symmetric potential for inherent infringement as well.

The *SmithKline* decision invalidated SmithKline’s patent on crystalline paroxetine hydrochloride (PHC) hemihydrate, one of a class of chemical compounds invented during the late 1970s and possessing antidepressant properties.²³⁴ An earlier form of the paroxetine salt had been an anhydrate lacking any bound water molecules, whereas the more stable hemihydrate comprised PHC crystals with one water molecule for every two PHC molecules.²³⁵ The court held that the prior art anhydrate inherently anticipated the patented hemihydrate because producing the anhydrate necessarily produced trace amounts of hemihydrate.²³⁶ The court found it irrelevant that these trace amounts were not detectable at the time²³⁷ and were therefore incapable of being appreciated by those of ordinary skill in the art. Not coincidentally, the court in *SmithKline* also found that Apotex, by producing such trace amounts of PHC hemihydrate through its production of prior art PHC anhydrate, would have infringed SmithKline’s patent.²³⁸ However, in view of the court’s inherent anticipation finding, the finding infringement carried no liability.²³⁹

The *SmithKline* decision has potentially profound ramifications for the patent notice debate. By removing the inherency doctrine’s historical *sine qua non* of knowledge, recognition, or appreciation, the Federal Circuit

²³³ 403 F.3d 1328, 1329 (Fed. Cir. 2005) (denying petition for rehearing *en banc*) (Newman, J., dissenting) (expressing “concern that the court has preserved the [panel] opinion’s enlargement of the ground of invalidity called ‘inherent anticipation’”).

²³⁴ 403 F.3d 1331, 1334 (Fed. Cir. 2005).

²³⁵ *Id.*

²³⁶ *Id.* at 1341.

²³⁷ *Id.* at 1341–42.

²³⁸ *Id.* at 1346.

²³⁹ *Id.* at 1346–47.

has bilaterally distorted the incentive structure underlying the patent system. On the one hand, because qualities inherent in a technology that were unappreciated even by those having ordinary skill in that technology may now create anticipation and defeat novelty, the ability of innovators to secure patent protection is weaker.²⁴⁰ No less important, however, is the implicit newfound ability of patent owners to impose infringement liability, on a theory of inherent infringement, against those whose conduct inadvertently constitutes practicing the patented invention. This is strict liability patent infringement in the true sense, and because no appreciation of the physical consequences of one's conduct is necessary for a finding of inherent infringement, the boundary notice function of patents and the opportunity to avoid infringement in this regime are wholly meaningless.

The relevant intent doctrine provides a cure for this jurisprudential shift as well. Because relevant intent requires purposive action on the part of an alleged infringer²⁴¹ and because purposive action is not possible without knowledge or appreciation of the underlying consequences of one's actions,²⁴² the intentional nature of the direct infringement tort that is proposed here provides a natural check against such an unconstrained view of inherency, either for anticipation or for direct infringement.²⁴³

²⁴⁰ See, e.g., Alfredo De La Rosa, *A Hard Pill to Swallow: Does Schering v. Geneva Endanger Innovation within the Pharmaceutical Industry?*, 8 COLUM. SCI. & TECH. L. REV. 37 (2007) (arguing that the broader scope of the inherent anticipation doctrine in *SmithKline* and the related decision in *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373 (Fed. Cir. 2003), stands to impede the development by pharmaceutical companies of *in vivo* metabolites and other biological compositions).

²⁴¹ See *supra* Part II.B (elucidating the operation of the relevant intent doctrine in patent infringement).

²⁴² See *supra* notes 99–106 and accompanying text (discussing the long-understood relationship between appreciation of the physical consequences of one's conduct and purposive action in the sense of intent).

²⁴³ But see Dan L. Burk & Mark A. Lemley, *Inherency*, 47 WM. & MARY L. REV. 371, 381–82 (2005) (advancing a “public benefit” theory of inherency that foundationally rejects the knowledge or appreciation requirement in traditional inherency doctrine and, accordingly, commending the Federal Circuit's turns in *SmithKline* and *Schering*). Professors Burk and Lemley follow their argument as to anticipation to its conclusion in infringement, acknowledging that direct patent infringement will, indeed, be a true strict liability offense. *Id.* at 401n.150.

CONCLUSION

The central argument of this article has been that direct patent infringement is not a strict liability tort and that its designation is far from harmless given the high stakes of notice failure that strict liability would implicate for the patent system. In place of this mistaken strict liability conception, the text of the Patent Act and the historical understanding of patent infringement as an analogue of trespass in real property support a reframing of direct patent infringement as an intentional tort. The relevant intent of interest in this new doctrinal inquiry is an intent to perform an act that constitutes infringement: making, using, selling, or offering for sale an invention that happens to be patented. Neither a knowledge of patent nor any intent to commit infringement are necessary, just as they have been unnecessary for direct infringement thus far.

Moreover, the proposed doctrine of relevant intent offers considerable practical benefit for a number of doctrinal debates currently ongoing in the patent system. First, it offers a conceptual basis for resolving the Supreme Court's incomplete recent *Limelight* decision regarding divided patent infringement. Second, it is consonant with the interpretation-construction distinction in analyzing patent claims and offers a normative justification for engaging transparently in purposive claim construction as part of the growing scholarly emphasis toward decoupling the invention from the peripheral claim. Third, it offers a jurisprudential cure both to the Federal Circuit's ill-advised expansion in the *SmithKline* decision of inherent anticipation doctrine and to that expansion's as-yet-unrealized corollary, inherent infringement and its true strict liability consequences.

Fourth, and most generally, the relevant intent doctrine provides an explicit policy lever for mitigating the naturally divergent effects of patent boundary notice upon different economic actors depending on their place and function in the technological marketplace. It does so by exploiting the logical relationship between the specificity with which various economic actors engage with technology and the awareness, hence the purposive action, that the law may properly ascribe to those actors in possessing the relevant intent to perform the acts that may constitute infringement. Thus, manufacturers, who are likely to be most directly engaged, will tend most likely to act with relevant intent, and the proposed doctrine will disrupt little in the current state of affairs. Sellers and offerors, who are likely to be engaged with greater variation depending on their place in the stream of

commerce, will tend to act with relevant intent in proportion to their engagement with the technical details of the goods that they sell or offer, and thus in proportion to their economically practicable ability to avoid infringement at low cost. And users, particularly end users who are likely to be least directly and specifically engaged with the technical details of inventions (particularly highly integrated products comprising large numbers of component inventions), will tend least likely to act with relevant intent and will be most likely exempt from infringement liability. In this way, the doctrine of relevant intent also provides a systematic underpinning for various existing proposals to provide just such a discriminant function within infringement doctrine, proposals which have thus far remained pragmatic departures from the general body of patent law.