

MORE PROPERTY RULES THAN PROPERTY? THE RIGHT TO EXCLUDE IN PATENT AND COPYRIGHT

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ABSTRACT

Patent and copyright rely more consistently on property rules than property law itself. While IP law is intended to enhance intellectual production, the property-rule remedies of injunctive relief and punitive damages sometimes conflict with this goal. In particular, these remedies may dampen innovation by imposing unjustified costs on unwitting infringers and allowing opportunists to hold up projects that implicate several parties' rights. Both problems could be ameliorated by strategic deployment of liability rules, and the law of tangible property demonstrates how this strategy might work. While we might assume that the law protects tangible property with property rules, closer scrutiny shows that courts and lawmakers use liability rules to deal with unintentional trespasses and to circumvent holdout problems involving real property.

This analysis yields three payoffs. First, it develops the novel and counterintuitive argument that IP deploys property rules in many circumstances where property law would use liability rules. This arrangement is backwards because the greater notice failures, inexhaustibility, and importance of building on others' work inherent to intellectual production counsel in favor of liability rules. Second, it grounds the theoretical debate over the use of property rules versus liability rules in IP in real property doctrine, where courts and lawmakers have taken the pragmatic approach of structuring entitlements to facilitate economic progress. Finally, it identifies ways the choice of remedies could serve as a concrete policy lever to address issues in IP: (1) IP law could correct notice failures by creating a "reasonable search defense"—eliminating property-rule protection in cases of accidental infringement—to encourage users to search and owners to publicize their claims; (2) courts could defuse holdout strategies by denying property-rule protection to IP owners who refused

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to bargain in good faith; and (3) the state could pursue important policy objectives by employing—or threatening to employ—its authority to enact compulsory licenses.

INTRODUCTION	687
I. PROPERTY RULES VERSUS LIABILITY RULES	693
A. <i>The Case for Property Rules in IP</i>	695
B. <i>The Case for Liability Rules in IP</i>	697
C. <i>Breaking the Impasse</i>	699
II. LIABILITY RULES FOR TANGIBLE PROPERTY	700
A. <i>Negligent Trespass</i>	700
B. <i>Unintentional Encroachment</i>	701
C. <i>Necessity</i>	703
D. <i>Nuisance</i>	704
E. <i>State-Authorized Takings</i>	705
III. PROPERTY RULES IN PATENT	707
A. <i>Injunctions Post-eBay</i>	707
B. <i>“Reasonable Royalty” Damages</i>	709
IV. PROPERTY RULES IN COPYRIGHT	712
A. <i>Statutory Damages Are Mandatory</i>	712
B. <i>Exceptions</i>	714
1. <i>Fair Use</i>	714
2. <i>Industry-Specific Exceptions</i>	716
V. THE CASE FOR PROPERTY RULES IS STRONGER FOR REAL PROPERTY THAN IP	718
A. <i>Real Property’s Pluralistic Normative Foundations</i>	718
B. <i>Notice Failures</i>	720
C. <i>Inexhaustibility</i>	722
D. <i>Cumulative Intellectual Production</i>	724
E. <i>Counterarguments</i>	725
VI. BEYOND PROPERTY RHETORIC	727
A. <i>Balancing Rights to Promote Progress</i>	728
B. <i>Remedial Choices as Policy Levers</i>	730
1. <i>Defusing Notice Failures via Reasonable Search Defense</i> ..	730
2. <i>Defusing Holdups via Limited Compulsory Licensing</i>	732
3. <i>Non-Market Rate Compulsory Licenses</i>	733
C. <i>Barriers to Reform</i>	735
CONCLUSION	737

INTRODUCTION

Patent and copyright law rely predominantly on property rules rather than liability rules.¹ While this may not seem surprising for areas of law designated as “intellectual property” (IP), it turns out that copyright and patent rely more consistently on property rules than property law itself. In designating strong rights to exclude as “property rules,” Guido Calabresi and Douglas Melamed evoked the high level of protection the law provides over ownership of tangible things, especially real property.² The law of real property nonetheless draws on the weaker protection of liability rules in many situations. These departures from property-rule protection allow for remedial flexibility in cases where the injunctive relief and punitive damages authorized under a property rule would seem disproportionate to the defendant’s culpability or create conditions for opportunism and market failure.

Neither patent nor copyright provides courts the same leeway in fashioning remedies. Yet issues of culpability and market failure create problems for the application of property rules in IP disputes just as they do for real property. Proponents of property-rule protection in patent and copyright might argue that these strong remedies are appropriate because they further the utilitarian goal of bolstering *ex ante* incentives for investment in intellectual production.³ This answer is unsatisfying, however, in circumstances where inflexible deployment of property rules does not bolster intellectual production but instead creates problems for the creation and distribution of new intellectual works.

Property rules may be counterproductive, for example, in situations of notice failure—circumstances where parties unwittingly infringe because the patent and copyright systems provide inadequate notice of IP owners’ rights.⁴ Consider

¹ The “property rule” versus “liability rule” framework traces back to Guido Calabresi and Douglas Melamed’s pathbreaking piece, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972), and is described in greater detail below. See *infra* notes 30–39 and accompanying text.

² Calabresi & Melamed, *supra* note 1, at 1105.

³ See U.S. CONST. art. I, § 8, cl. 8; Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1057 (2005) (explaining the incentive theory of IP); Peter S. Menell, *Intellectual Property: General Theories*, in 2 ENCYCLOPEDIA OF LAW AND ECONOMICS 129, 130 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) (identifying the “utilitarian foundation” of patent and copyright); see also William Fisher, *Theories of Intellectual Property*, in NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 172–73 (Stephen R. Munzer ed., 2001) (identifying a range of values that IP might be structured to advance); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 275–80 (1977) (exploring the impact of IP rights on investment in innovation).

⁴ See, e.g., Peter S. Menell & Michael J. Meurer, *Notice Failure and Notice Externalities*, 5 J. LEGAL ANALYSIS 1, 9–10 (2013) (detailing costs imposed by inadequate notice).

first how these problems arise with respect to patented inventions. Independent invention is not a defense against patent infringement.⁵ This means that an independent inventor commits patent infringement even if—through original research—she develops a product that inadvertently embodies someone else’s patent. The defendant’s factual ignorance of the patent provides no defense even if she can prove that she searched exhaustively for conflicting patents and found none.⁶ Indeed, the defendant remains liable for infringement even if the patent would be impossible to find at the time of the search. Inventors often face this risk in emerging technology markets due to the confidentiality of patent applications. Prior to 2001, the Patent and Trademark Office (PTO) held patent applications in confidence until they were granted; even now it holds patent applications in confidence for eighteen months after filing.⁷ This is no trivial concern. Research in Motion (RIM)—manufacturer of the Blackberry—was nearly put out of business by a patent whose application was still confidential at the time RIM began raising capital.⁸ The patentee ultimately pushed RIM to settle for \$612.5 million to avert the risk of injunctive relief.⁹

Consider also the risk of unwitting infringement that consumers face in their everyday interactions with digital works. Routine activities such as browsing the Internet, forwarding emails, and running cloud software create “copies” for purposes of the Copyright Act.¹⁰ These acts of copying may or may not constitute infringement depending on a range of context-specific factors that are difficult even for legal experts to evaluate.¹¹ Similar problems are on the horizon

⁵ See Stephen M. Maurer & Suzanne Scotchmer, *The Independent Invention Defence in Intellectual Property*, 69 *ECONOMICA* 535, 535 (2002) (“Perhaps the most basic difference between patents and other intellectual property such as trade secrets and copyright is that independent invention is not a defence to infringement.”).

⁶ *Id.*

⁷ 35 U.S.C. § 122(a)–(b) (2012); 1 PETER S. MENELL ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE*: 2018, at 165 (2018).

⁸ Menell & Meurer, *supra* note 4, at 2–3.

⁹ See *id.* at 4.

¹⁰ See generally John Tehranian, *Introduction: Infringement Nation: Copyright Reform and the Law/Norm Gap*, 2007 *UTAH L. REV.* 537, 543–48 (2007) (offering a hypothetical, relatively unremarkable day in which a user would have “committed at least eighty-three acts of infringement” with potential liability up to “\$12.45 million (to say nothing of potential criminal charges)”).

¹¹ See *id.*; see also Tim Wu, *Tolerated Use*, 31 *COLUM. J.L. & ARTS* 617, 617 (2008) (“There is a giant grey zone in copyright, consisting of millions of usages that do not fall into a clear category but are often infringing. These usages run the gauntlet, from PowerPoint presentations, personal web sites, social networking sites, church services, and much of Wikipedia’s content to well-known fan guides.”) (citation omitted). See generally Shyamkrishna Balganesh, *The Uneasy Case Against Copyright Trolls*, 86 *S. CAL. L. REV.* 723 (2013) (probing the problems that arise when copyright owners begin suing users for technical infringements that were previously “tolerated”).

in patent as new technologies like 3D printing make it possible for home users to share and replicate patented inventions.¹²

Using property rules to penalize inventors and users for acts they do not know are infringing does little to advance the property-rule goal of channeling these users into market transactions.¹³ Instead, they impose a set of additional costs—including search costs and the latent risk of injunctive relief or punitive damages—that take a toll on both inventive effort and the public’s engagement with new works and inventions. Property rules may further weaken the market by encouraging opportunistic IP owners to obscure their rights in hopes of suing unwitting parties for infringement damages well above what they could have demanded in licensing royalties.¹⁴ This is the strategy that so-called patent trolls exploit when they amass a portfolio of patents and then lie in wait hoping to sue an unwitting infringer.¹⁵

The problems posed by overuse of property rules, moreover, are not limited to circumstances of notice failure. Property rules may also exacerbate the difficulty of coordinating usage rights in the information economy. Patent law provides suboptimal incentives for innovation when “patent thickets” give multiple parties veto power over the introduction of a new product to the market. Patent thickets arise in industries like those of semiconductors, biotechnology, or software where a party seeking to commercialize a new product must obtain

¹² See generally Deven R. Desai & Gerard N. Magliocca, *Patents, Meet Napster: 3D Printing and the Digitization of Things*, 102 GEO. L.J. 1691 (2014) (arguing that 3D printing will make the exclusivity of patents meaningless); Timothy R. Holbrook & Lucas S. Osborn, *Digital Patent Infringement in an Era of 3D Printing*, 48 U.C. DAVIS L. REV. 1319 (2015) (discussing the recourse patent holders may have when their rights are infringed through the use of 3D printing and other such devices).

¹³ See Avihay Dorfman & Assaf Jacob, *Copyright as Tort*, 12 THEORETICAL INQUIRIES L. 59, 86 (2011) (describing problems with these “artificial incentives”). Among other problems, this sort of regime can lead to the phenomenon that James Gibson has dubbed “rights accretion,” where risk-averse parties seek licenses where none are needed; this practice creates a feedback loop where other parties—and courts—begin to think licenses are required. See James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882, 887 (2007). Punishing users harshly for their good-faith mistakes can also have the perverse effect of reducing popular compliance with copyright where it undermines the perceived legitimacy of the regime. See Jessica Litman, *Real Copyright Reform*, 96 IOWA L. REV. 1, 18 (2010) (“A public that complies with copyright only because it’s afraid of the copyright police will soon find ways to evade or restrain the copyright police.”); Tom R. Tyler, *Compliance with Intellectual Property Laws: A Psychological Perspective*, 29 N.Y.U. J. INT’L L. & POL. 219, 229–30 (1996–1997) (exploring the relation between voluntary compliance and perceptions of the law as legitimate and fair).

¹⁴ See Menell & Meurer, *supra* note 4, at 52 (finding that the current structure of IP rights and remedies “encourage[s] parties to hide, obfuscate, and distort notice information”).

¹⁵ Richard Schmalensee, *Standard-Setting, Innovation Specialists and Competition Policy*, 57 J. INDUS. ECON. 526, 529 (2009) (“Just as trolls in folk tales hide under bridges and emerge suddenly to demand tolls from unsuspecting travelers, so patent trolls hide their intellectual property until an opportune time and then emerge to extract royalties.”).

licenses from several different patentees.¹⁶ Firms already established in a given industry may sometimes be able to leverage their existing patent portfolios to secure freedom to operate relative to one another, either by entering cross-licensing deals or threatening each other with countersuits.¹⁷ Even if this is so, however, these thickets operate as barriers against smaller firms or new market entrants who lack these extensive portfolios.¹⁸ Copyright presents similar problems for any project—be it a documentary that includes snippets from pop culture¹⁹ or a massive digitization project like Google Books²⁰—that requires obtaining authorization to use a large number of specific works.

The underlying problem in circumstances that require coordination of rights is that property rules have the potential to facilitate opportunism through holdout strategies.²¹ That is, property rules give each owner an effective monopoly, or

¹⁶ Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119, 120, 144 (Adam B. Jaffe et al. eds., 2000); see also *id.* at 120 (defining a patent thicket as “a dense web of overlapping intellectual property rights that a company must hack its way through in order to actually commercialize new technology”).

¹⁷ See, e.g., Jonathan M. Barnett, *Property as Process: How Innovation Markets Select Innovation Regimes*, 119 YALE L.J. 384, 455 (2009) (“[T]he rational incentives of large resource holders in maximizing the cumulative stream of net innovation returns . . . generate cooperative structures that relieve transaction cost burdens that might otherwise endanger innovative input.”).

¹⁸ Some have identified potential benefits from this concentration of patents: small innovators may be encouraged to transfer their inventions to existing portfolios, see Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 33–34 (2005), and concentrating patents in fewer hands may lower transaction costs by reducing the number of parties involved, see Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2155–61 (2013).

The drawback of this approach, however, is that it vests current industry participants with the power to decide whether to pursue or introduce new ideas or products. Despite the potential benefits of these innovations, industry incumbents are often reluctant to make a move that might disrupt the status quo. See generally CLAYTON M. CHRISTENSEN, *THE INNOVATOR’S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FALL* (1997) (explaining why established businesses will often reject valuable innovations); BARBARA VAN SCHEWICK, *INTERNET ARCHITECTURE AND INNOVATION* 348 (2010) (problematising this sort of centralized control in the context of innovation online).

¹⁹ In one well-publicized incident, filmmaker Jon Else was compelled to excise a four-and-a-half second excerpt from *The Simpsons* from the background of a scene about the staging of an opera from Wagner’s Ring Cycle because Fox demanded a \$10,000 licensing fee and the outcome of the fair use defense was uncertain. LAWRENCE LESSIG, *FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY* 95–99 (2004). The threat of copyright liability and its associated penalties thus deprived the public “of this delicious moment contrasting high culture with low culture.” See David Nimmer, *A Modest Proposal to Streamline Fair Use Determinations*, 24 CARDOZO ARTS & ENT. L.J. 11, 16–17 (2006).

²⁰ Obtaining permission to scan many of these books was effectively impossible in light of the “orphan works” problem, where the copyright owner can no longer be identified. See generally U.S. COPYRIGHT OFFICE, REGISTER OF COPYRIGHTS, REPORT ON ORPHAN WORKS (2006), <http://www.copyright.gov/orphan/orphan-report-full.pdf>. The Google Books project was ultimately cleared of liability on the basis of fair use, *Authors Guild v. Google, Inc.*, 804 F.3d 202, 225 (2d Cir. 2015), which offers a partial solution to the problem of transaction costs in copyright. See also *infra* Section IV.B.1.

²¹ Calabresi & Melamed, *supra* note 1, at 1106–07 (describing situations where owners may hold out for

veto power, to block any prospective user from utilizing a specific piece of IP necessary for a productive use.²² Despite the potential gains from this new use, the parties may find themselves at an impasse over how to split the benefits.²³ If the IP owner is risk averse, moreover, it may veto any development that threatens to disrupt business as usual.²⁴

This Article argues that both problems—unwitting infringement and holdouts—could be ameliorated by strategic deployment of liability rules. The argument proceeds in six parts. Part I retraces the existing debate over the desirability of property rules versus liability rules in IP. Parts II–IV compare the use of property rules and liability rules in real property, patent, and copyright to develop a novel descriptive account of the law: IP is more property-like in its continued reliance on property rules to dictate the form of protection in circumstances where, in real property law, courts would have discretion to deploy a liability rule.²⁵ To be sure, both patent and copyright include limitations or exceptions designed to mitigate the perceived harshness of property rules, but

more than their actual valuation of the property).

²² See *id.*

²³ See Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement To Facilitate Coasean Trade*, 104 YALE L.J. 1027, 1030 (1995) (tracing the problem to the parties' incentives to over- or under-state their valuation of the property); Richard A. Epstein, *A Clear View of The Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2094 (1997) (identifying circumstances where "the parties labor under strong incentives to hold out" even though "much of the surplus . . . could be dissipated" through such gamesmanship).

²⁴ See sources cited *supra* note 18.

²⁵ To be sure, patent and copyright often award damages rather than injunctive relief, and it is sometimes supposed that damages indicate a liability rule. But these damages instantiate a property rule, not a liability rule, where they are punitive in nature. Scholars going back to Judge Calabresi and Professor Melamed have identified punitive damages as a property-rule remedy, insofar as the role of property rules is to deter unauthorized use by non-owners. Calabresi & Melamed, *supra* note 1, at 1126 & n.71. The distinction between the punitive damages that characterize a property rule and the compensatory damages of a liability rule mirrors a familiar distinction in contract law: parties may not enforce liquidated damages clauses that are punitive, but they may enforce such clauses where they serve to estimate actual damages. See, e.g., RESTATEMENT (SECOND) OF CONTRACTS § 356 (AM. LAW INST. 1981).

This distinction makes sense because punitive damages have the same prospective effect as an injunction when they are so high as to make the use in question prohibitively expensive. Louis Kaplow and Steven Shavell have in fact suggested a unified scale where we simply conceive of injunctive relief as infinitely high damages; perhaps treating the choice of entitlement as a spectrum rather than a binary would be more precise. See Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713, 756 (1996); see also Ian Ayres & J.M. Balkin, Essay, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, 106 YALE L.J. 703, 705 (1996) ("Property rules set the exercise price so high that no one is likely to exercise the option to take nonconsensually . . ."). The important point, for purposes of this Article, is that IP errs consistently closer to the punitive or property-rule end of this spectrum in circumstances where tangible property law would permit damages like those one would expect under a liability rule.

these mechanisms fail to address several common fact patterns where transaction costs would be too high to justify property rules.

Part V argues that the greater prevalence of property rules in patent and copyright is backwards because the case for property rules is actually weaker for IP than for tangible property. To be sure, the scope of patent and copyright protection is limited in duration relative to tangible property, and further constrained by other limits such as copyright's idea/expression dichotomy.²⁶ It is nonetheless counterintuitive to find that IP relies more heavily on property rules than tangible property law. Several features of intellectual works—their greater notice failures relative to tangible property, inexhaustibility, and reliance on cumulative development—suggest they are less in need of property-rule protection. In addition, flexibility in remedies seems more compatible with IP's utilitarian roots than with tangible property's more pluralist and pro-owner normative foundations.²⁷

Part VI builds on these observations to argue that patent and copyright, like the law of tangible property, should adopt a more pragmatic approach to protecting ownership. Many of real property law's departures from property-rule protection appear to be responses to the resource coordination problems of industrial production.²⁸ This author does not argue that we should copy the entitlement structure of real property over to IP wholesale.²⁹ Instead, the

²⁶ One might query whether some of these limitations diminish the value of these rights in practice. Patents and copyrights have term limits that most tangible property does not. This limit means little, however, when these rights cover the majority of the period in which most IP rights are commercially valuable. The twenty-year patent term may cover the entire period in which any given invention is commercially viable in many fast-moving industries. Under U.S. copyright law, moreover, works published as long ago as 1924 remain protected so long as their owners obtained proper registration and renewal. See Glenn Fleishman, *For the First Time in More than 20 Years, Copyrighted Works Will Enter the Public Domain*, SMITHSONIAN MAG., Jan. 2019, <https://www.smithsonianmag.com/arts-culture/first-time-20-years-copyrighted-works-enter-public-domain-180971016/>. Many potential limitations in IP, moreover, are so technical that they introduce additional investigation costs and uncertainties that ultimately exacerbate IP's notice failures.

²⁷ See Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEX. L. REV. 517, 530–32 (2014); Molly Shaffer Van Houweling, *Touching and Concerning Copyright: Real Property Reasoning in MDY Industries, Inc. v. Blizzard Entertainment, Inc.*, 51 SANTA CLARA L. REV. 1063, 1074 (2011) (contrasting the "individualized, if not eccentric, preferences" that real property law entertains with IP's clearer utilitarian mandate).

²⁸ Julie Cohen has probed the connection between legal doctrine and industrialization in a related context. She focuses in particular on the role that collateral developments like the rise of corporate law played in solving the problems of managing industrial-era property to promote economic production. See generally Julie E. Cohen, *Copyright as Property in the Post-Industrial Economy: A Research Agenda*, 2011 WIS. L. REV. 141 (2011). Following this analysis, she asks how we might adopt similar regulatory frameworks collateral to copyright to better promote cultural production in today's post-industrial economy. *Id.* This author's work asks how property law itself has changed, and what we might learn from these developments.

²⁹ As many scholars have noted, however, close examination of the many exceptions and limitations of

argument is that IP should adopt a similar pragmatism in tailoring its remedies to the demands of intellectual production.

This Part also proposes three specific interventions. First, IP law can address notice failures by adopting a “reasonable search defense” that eliminates property-rule protection in cases of accidental infringement. This defense would create incentives for users to search for conflicting rights and for owners to publicize their claims. Second, courts could defuse holdout strategies by authorizing de facto compulsory licenses in cases where an IP owner refuses to bargain in good faith to license rights for a project with significant public benefit. And third, the state can take an active role in pursuing public health, innovation, and other policy goals by employing its authority to enact compulsory licenses.

I. PROPERTY RULES VERSUS LIABILITY RULES

Property rules and liability rules present two distinct strategies for protecting legal entitlements such as ownership rights. Scholars have debated the relative merits of both strategies as applied to different entitlements ever since Guido Calabresi and Douglas Melamed drew the distinction in their pathbreaking 1972 piece: *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*.³⁰

Property rules prohibit nonconsensual takings.³¹ Courts enforce a property rule by either entering an injunction to prohibit (or undo) the taking or awarding punitive damages to deter would-be takers.³² These strong remedies are designed

tangible property does suggest a number of salutary reforms that we should at least consider for IP. *See generally* Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 DUKE L.J. 1 (2004) (developing an exhaustive list of potential limitations); Christopher M. Newman, *A License Is Not a “Contract Not To Sue”: Disentangling Property and Contract in the Law of Copyright Licenses*, 98 IOWA L. REV. 1101, 1120–23, 1144–51, 1159–60 (2013) (identifying the ways that treating licenses as property rights could protect licensees); Molly Shaffer Van Houweling, *The New Servitudes*, 96 GEO. L.J. 885 (2008) (translating real property’s limitations on running restrictions to the IP context).

³⁰ Calabresi & Melamed, *supra* note 1. Henry Smith offers an alternative taxonomy, where “exclusionary regimes” roughly match property rules and “governance regimes” roughly match liability rules. *See* Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719, 1757–58 (2004). Smith’s terminology has the benefit of focusing on the nature of the protection and escaping the linguistic problems that arise from the use of two terms—“property” and “liability”—that call to mind so many disparate meanings in the law. This Article nonetheless utilizes the conventional nomenclature to keep this piece in dialogue with the ongoing debate.

³¹ Calabresi & Melamed, *supra* note 1, at 1092.

³² *Id.* at 1116, 1126; *see also* Kaplow & Shavell, *supra* note 25 (analogizing injunctive relief to infinitely high damages). As the discussion of copyright below will explain in greater detail, moreover, damages can sometimes make for harsher punishment than injunctive relief. The consumer who has made an infringing personal use by improperly copying an MP3 or e-book, for example, would almost certainly prefer an injunction ordering destruction of the copy to copyright’s mandatory statutory damages of \$750 or more per work. *See infra* Section IV.A.

to force non-owners to bargain for the rights in question; the underlying logic of a property rule is that owners are in the position to assign resources to their highest value uses through the market. As Professors Calabresi and Melamed observe, however, the market may fail when there are high transaction costs,³³ including the costs of identifying and negotiating with owners and the costs imposed by holdout strategies.³⁴

Liability rules provide less stringent protection insofar as they allow parties to take an entitlement without the owner's permission.³⁵ Under a liability-rule regime, the state intervenes—usually through a court or an agency rate-maker—to impose damages that approximate the owner's loss or the estimated market value of that which is taken.³⁶ The primary benefit of liability rules is that they allow parties to bypass the transaction costs associated with property rules: the parties need not engage in costly transactions if the state can accurately set the price.

Problems arise in the implementation of liability rules when courts award damages that prove undercompensatory.³⁷ If the court-imposed rate falls short of the costs of developing or improving the property in question, for example, the incentives for those innovators and other prospective innovators to invest in future innovation are diminished.³⁸ The administrative costs of calculating damages give rise to a related set of concerns: a court implementing a liability rule must expend significant resources to appraise the property, while under a

³³ Calabresi & Melamed, *supra* note 1, at 1119.

³⁴ See Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 787 (2007) (distinguishing these two sets of costs); see also Carol M. Rose, *The Shadow of The Cathedral*, 106 YALE L.J. 2175, 2184 (1997).

³⁵ See Rose, *supra* note 34, at 2178–79 (observing that “the liability rule yields a different and diminished entitlement for the [property owner]”).

³⁶ Calabresi & Melamed, *supra* note 1, at 1126. Other strategies are also available within the liability-rule framework: regulators might for example set the price to force takers to internalize some externality not otherwise reflected in the market price, or they might set the price at a “penalty default” that encourages the parties to bargain for mutually favorable terms. See Kristelia A. García, *Penalty Default Licenses: A Case for Uncertainty*, 89 N.Y.U. L. REV. 1117, 1122 (2014).

³⁷ See, e.g., Epstein, *supra* note 23, at 2093; A. Mitchell Polinsky, *On the Choice Between Property Rules and Liability Rules*, 18 ECON. INQUIRY 233, 239 (1980) (modeling the risk that liability rules may systematically undercompensate owners).

³⁸ This argument runs parallel to Frank Michelman's insight in arguing that eminent domain—a prominent but perennially controversial liability-rule regime—ought to pay special attention to demoralization costs, or the potential psychological harms that arise from taking property without adequate compensation. See Frank I. Michelman, *Property, Utility, and Fairness: Comments on the Ethical Foundations of “Just Compensation” Law*, 80 HARV. L. REV. 1165, 1214–18 (1967).

property rule an owner ostensibly already possesses information on the rights' value and can more efficiently set an appropriate price.³⁹

A. *The Case for Property Rules in IP*

Many prominent legal scholars argue that ownership of tangible property and IP alike should be secured by property rules.⁴⁰ The primary argument is that property rules provide better incentives than liability rules towards the achievement of IP's utilitarian goal of motivating private parties to create and develop new inventions and creative works.⁴¹ Investment in intellectual production would be curtailed if IP owners faced substantial risk of having their IP taken without adequate compensation for those investments. Because property rules prohibit or penalize nonconsensual takings rather than trying to set a price for them, they eliminate the risk that a court will undercompensate the owner. They also supply potential users an incentive to investigate whether their uses conflict with existing IP rights, which is efficient so long as the search costs are reasonable.⁴²

³⁹ Smith, *supra* note 30. The relative competence of courts versus owners may of course vary in different industry contexts. For further analysis of the property rule versus liability rule dichotomy as a question of competence, see, for example, NEIL K. KOMESAR, *IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY* 21–26 (1994) (noting that the factors that create difficulties for the market under a property rule also create difficulties for courts under a liability rule); Richard R.W. Brooks, *The Relative Burden of Determining Property Rules and Liability Rules: Broken Elevators in the Cathedral*, 97 NW. U. L. REV. 267, 305 (2002) (comparing the evidentiary burdens that courts face in applying a property rule versus a liability rule).

⁴⁰ See generally, e.g., Epstein, *supra* note 23 (arguing that property rules can—and do—dominate because they minimize error costs in most transactional settings); Kaplow & Shavell, *supra* note 25, at 715–16 (“A major objective of the Article is to explain why possessory interests in things are generally protected by property rules . . .”); F. Scott Kieff, *On Coordinating Transactions in Intellectual Property: A Response to Smith’s Delineating Entitlements in Information*, 117 YALE L.J.F. (2007), <https://www.yalelawjournal.org/forum/on-coordinating-transactions-in-intellectual-property-a-response-to-smiths-delineating-entitlements-in-information> (“Treating IP as property with rights to exclude provides significant incentives for parties to collaborate, helping to solve a key problem that would otherwise frustrate the socially constructive coordination that facilitates commercialization of innovation.”); Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1307 (1996) (arguing that property rules are preferable for the protection of IP because parties can bargain around an inefficient property rule). Henry Smith adopts a middle position—while his intuitions align with the pro-property rule camp, he argues that the choice requires empirical examination of whether property or liability rules better address the information costs of IP in a given context. See Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1781 (2007).

⁴¹ This justification tracks the logic of the “prospect theory” for protecting IP rights. See Kieff, *supra* note 40 (“[T]he credible threat of exclusion associated with a published patent acts like a beacon in the dark, drawing to itself all those interested in the patented subject matter.”); Kitch, *supra* note 3. Henry Smith makes the related argument that property rules provide parties with the proper incentives to invest in acquiring information about the value and potential uses of the property. See Smith, *supra* note 30, at 1763–64.

⁴² The law in other words ought not require the user to search past the point when the marginal costs of

Another argument for property rules arises from their potential to curtail wasteful efforts at self-help.⁴³ Owners who fear undercompensation under a liability rule might direct resources towards fences and locks to protect themselves against unauthorized takings in the absence of stronger legal protections. Features of both copyright and patent law address this concern. Copyright law, through provisions of the Digital Millennium Copyright Act (DMCA), provides legal reinforcement to the technological protection measures that copyright owners use to secure digital works.⁴⁴ While this scheme does endorse self-help, it also reduces the waste involved by assuring copyright owners that they need only meet the minimum threshold for DMCA protection rather than engage in a technological arms race.⁴⁵

Providing an alternative to self-help also supports patent law's publication imperative. Courts and scholars often describe patent protection as a quid pro quo where the patentee discloses the details of the new invention in exchange for a limited term of exclusivity.⁴⁶ In the absence of reliable protection, patent owners might refuse to patent and seek instead to protect their technological advances as trade secrets. This approach to invention would deprive the public of the benefits that flow from the open publication of new inventions. Indeed, it might skew firms' inventive efforts towards advances that could be protected by trade secret rather than those with the greatest social utility.⁴⁷

Finally, an influential article by Robert Merges suggests that property rules are preferable in IP because—if the property rule turns out to be inefficient—

further investigation outweigh the marginal benefits. This argument connects to the principle that the law will not enforce property rights where owners fail to provide sufficient notice. See Henry Hansmann & Reinier Kraakman, *Property, Contract, and Verification: The Numerus Clausus Problem and the Divisibility of Rights*, 31 J. LEGAL STUD. S373, S374 (2002) (finding that the law tailors the enforcement of property rights to the provision of notice); Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 26–27 (2000) (arguing that property law imposes standardization on ownership forms to contain notice externalities that would otherwise burden the public).

⁴³ See Kaplow & Shavell, *supra* note 25, at 768–69; Smith, *supra* note 30, at 1785–90.

⁴⁴ 17 U.S.C. § 1201 (2012).

⁴⁵ See Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575, 1646 (2002) (explaining that “[t]he super-strong protection of the DMCA . . . erodes incentives to use technical measures”).

⁴⁶ See, e.g., *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 142 (2001) (“The disclosure required by the Patent Act is ‘the quid pro quo of the right to exclude.’” (quoting *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484 (1974))); Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 574 (2012) (describing the potential benefits of disclosure to other researchers).

⁴⁷ Cf. Amy Kapczynski & Talha Syed, *The Continuum of Excludability and the Limits of Patents*, 122 YALE L.J. 1900, 1923–41 (2013) (showing how patent law fails to provide the proper incentives for several categories of lifesaving innovations that are difficult to protect under the existing regime).

owners can simply bargain around them.⁴⁸ Recall that property rules may prove inefficient in the face of high transaction costs.⁴⁹ We might accordingly think that property rules should not govern something like the licensing of copyrighted songs for public performance: it is difficult to imagine that each record label could strike deals with every retailer, restaurant, or barbershop that wanted to play music for its customers. The recording companies have nonetheless overcome the apparent difficulties by establishing collective rights organizations, like BMI and ASCAP, to offer standard rates for their combined catalogs of musical tracks.⁵⁰ In effect, the copyright owners replaced an unwieldy property rule with a de facto liability rule through private ordering.

The key assumption underlying this argument is that parties could not so easily bargain around an inefficient liability-rule regime. Recent scholarship, however, suggests that parties do sometimes engage in this sort of negotiation. Mark Lemley documents this phenomenon,⁵¹ and Kristelia García has completed an in-depth study of the phenomenon in the context of the music recording industry.⁵² The perceived asymmetry between parties' ability to bargain around property rules and liability rules is thus less stark than previously suggested.

B. The Case for Liability Rules in IP

Liability rules offer a different set of advantages and costs for IP protection. Their principal advantage lies in the potential to avoid the transaction costs associated with property rules. IP transactions become costly when the owners are numerous or difficult to locate. This concern is salient in patent law when high-tech devices require coordination of several patent rights. Similar concerns arise in copyright law regarding major digitization projects. Consider Google Books, which sought to digitally archive the entirety of the world's books.⁵³ Negotiating with each author or publisher for the right to do this would be so costly as to preclude the use. The value of the project would be especially great for obscure or out-of-print books, but unfortunately these books present the greatest obstacles to negotiation—most of them are orphan works whose owners

⁴⁸ See Merges, *supra* note 40.

⁴⁹ See *supra* notes 33–34 and accompanying text.

⁵⁰ Merges, *supra* note 40, at 1328–40.

⁵¹ See Mark A. Lemley, *Contracting Around Liability Rules*, 100 CALIF. L. REV. 463, 470–83 (2012).

⁵² See García, *supra* note 36, at 1126 (“[T]he penalty default licensing regime proposed by this Article uses an unpalatable liability rule to encourage the substitution of a more efficient property rule.”).

⁵³ See *supra* note 20 and accompanying text.

are unknown and practically impossible to identify.⁵⁴ Google was ultimately absolved of the burden of finding these authors by operation of the fair use defense, but the status of orphan works remains in limbo as to other prospective uses.⁵⁵

IP transactions are also costly when owners employ holdout strategies.⁵⁶ Scenarios like these are familiar in discussions of tangible property. Under a property-rule regime, a farmer who knew that an industrialist needed a right of way to complete a rail line could demand rents above market price up to the total expense of entirely rerouting the line around that farmer's land. Or the opportunistic homeowner could make similar demands by threatening to shut down a factory over relatively minor damages from pollution. An analogous situation arises in IP when so-called patent trolls assert patent infringement only after a defendant has sunk substantial costs into developing and marketing an infringing product.⁵⁷ In these cases, a patentee who wins injunctive relief is in a position to demand all profits associated with the product up to the cost of switching to a non-infringing design regardless of the patent's value.⁵⁸ Liability rules would short-circuit this sort of opportunism by limiting the patentee's recovery to the market price of a license.

Liability rules also allow for more precise remedies than property rules. This issue is not salient in most real property disputes because most uses of real property are modular; an injunction against use of another's land will seldom interfere with the defendant's ability to use the rest of its property.⁵⁹ As applied to IP rights, however, injunctive relief may be overinclusive.⁶⁰ This problem is clearest in patent: an injunction against an infringing consumer device will deprive the infringer not only of the profits attributable to the infringement, but also any sales it expected to make on the basis of any labor, materials, and non-infringing components already incorporated into the product line. A similar problem is present in copyright. While digital editing and distribution technologies have made it easier for studios to excise infringing elements after release,⁶¹ a property rule allows a copyright owner to threaten an entire film,

⁵⁴ See *id.*

⁵⁵ See *Authors Guild v. Google, Inc.*, 804 F.3d 202, 225 (2d Cir. 2015).

⁵⁶ See Calabresi & Melamed, *supra* note 1, at 1106–07; see also sources cited *supra* note 23.

⁵⁷ See Schmalensee, *supra* note 15.

⁵⁸ See *id.*

⁵⁹ Eric Hovenkamp & Thomas F. Cotter, *Anticompetitive Patent Injunctions*, 100 MINN. L. REV. 871, 881 (2016).

⁶⁰ *Id.*; Lemley & Weiser, *supra* note 34, at 784–85.

⁶¹ When a tattoo artist claimed that Warner Brothers infringed his copyright by featuring a similar tattoo in its film *The Hangover Part II*, for example, the studio announced that it would digitally alter the tattoo for

album, or software package with an injunction on the basis of a single infringing element.⁶² A regime that awarded accurate compensatory damages would avoid collateral suppression of these non-infringing elements.

C. *Breaking the Impasse*

The debate over the relative desirability of property rules and liability rules for IP is difficult to resolve in the abstract. While IP scholars agree in broad strokes that IP is an instrumentalist regime, they bring different intuitions to the empirical question of whether property rules or liability rules best advance the goal of intellectual production.⁶³

This author argues we can bring new light to this debate by reexamining how courts and policymakers have navigated the choice between property rules and liability rules in tangible property itself. While people often assume that the ownership of tangible things is and ought to be protected by property rules, property law as an institution defies such oversimplification. As the next Part demonstrates, tangible property law employs liability rules across a range of circumstances to excuse unwitting interference with tangible property, balance competing parties' rights, or defuse holdout strategies.

It is worthwhile to engage in this comparison of legal protections between IP and tangible property because the underlying justifications for both sets of law overlap: scholars advocate the use of property rules in both settings to promote efficient markets for the distribution and development of resources.⁶⁴ But the contrast between the underlying justifications for both regimes is also instructive. While IP's dominant normative justification is grounded in social utility, the conventional justifications for tangible property include not only social utility but also Lockean labor theory and personhood theory.⁶⁵ Both these normative approaches provide additional support for property rules: a theory grounded in just deserts or in personhood should err on the side of stronger

home video release if the case failed to settle. Warner Bros.' Memorandum in Opposition to Plaintiff's Proposed Scheduling Plan at 1, *Whitmill v. Warner Bros. Entm't, Inc.*, No. 4:11-cv-00752-CDP (E.D. Mo. June 6, 2011), ECF No. 51.

⁶² Such was the result in Chief Judge Alex Kozinski's controversial panel decision in *Garcia v. Google, Inc.*, where the plaintiff forced YouTube to remove the inflammatory film *Innocence of Muslims* in its entirety based on her claim to copyright protection for just five seconds of video. 743 F.3d 1258, 1269 (9th Cir. 2014), *vacated en banc*, 786 F.3d 733 (9th Cir. 2015).

⁶³ Compare, e.g., Smith, *supra* note 30, at 1781 (acknowledging the empirical question but arguing for a presumption in favor of injunctions), with Lemley & Weiser, *supra* note 34, at 840–41 (acknowledging the question but arguing for deployment of liability rules in particular contexts).

⁶⁴ See sources cited *supra* note 40.

⁶⁵ See *infra* Section V.A.

protection because the owner's rights are paramount from these perspectives. It therefore stands to reason that any departures from property rules in the law of tangible property could be justified even more readily in IP. The discussion will return to further normative comparisons between the two regimes in Part V. To build the foundation for this analysis, however, the next three Parts will first examine the entitlement structures of tangible property, patent, and copyright in greater depth.

II. LIABILITY RULES FOR TANGIBLE PROPERTY

Real property law uses liability rules across a range of situations where property rules would seem suboptimal. The usual remedies for trespass are injunctions or some form of exemplary damages—property rule remedies—and this Article does not suggest the law should be otherwise. Property rules are especially prevalent where the trespass is intentional. *Jacque v. Steenberg Homes, Inc.* is instructive: the Wisconsin Supreme Court upheld \$100,000 in punitive damages when the defendant moved a trailer across the plaintiff's land without consent even though a blanket of snow protected the property from actual harm.⁶⁶ But *Jacque* is an easy case for property rules because there were no significant barriers to negotiation between the two parties.

As the following sections will show, property law often switches to a liability rule in cases of unintentional trespass, even when the trespass is ongoing, because in these cases property-rule remedies would not effectively encourage a market transaction. Courts and policymakers have also introduced liability rules for certain species of willful interference to facilitate economically or socially productive uses of land, as demonstrated in the doctrines of necessity and nuisance, and in state-authorized takings.

A. *Negligent Trespass*

Trespass law demonstrates how property law tailors the choice of entitlement—property rule or liability rule—to the defendant's culpability. As *Jacque* demonstrates, the intentional trespasser generally faces a property rule. When boundaries are clear and parties face no exigent circumstances, trespassers will be liable to pay a penalty even if the trespass is temporary and causes no actual damage.

⁶⁶ See 563 N.W.2d 154, 156 (Wis. 1997); see also RESTATEMENT (SECOND) OF TORTS § 158 (AM. LAW INST. 1965) (imposing liability for intentional trespass “irrespective of whether [it] causes harm to any legally protected interest”).

The remedial scheme is more nuanced, however, as to the unintentional trespasser. Many domestic jurisdictions have adopted a negligence standard for unintentional trespass.⁶⁷ The defendant who enters another's land unintentionally but without negligence, like the careful driver who loses control of the vehicle due to uncontrollable factors, like a hazardous road condition or a seizure, is generally not liable for trespass or its associated damages.⁶⁸ The driver who swerves onto a neighbor's land unintentionally but with some degree of negligence will be liable for trespass. Yet, even in these cases, the negligent trespasser faces not a property rule, but a liability rule: like other negligent tortfeasors, the negligent trespasser must pay damages to compensate for the fixtures, crops, or people injured.⁶⁹

Tailoring remedies to culpability makes sense. Parties who never intended to trespass are unlikely to be deterred by harsh penalties for doing so. At best, these penalties can provide parties with incentives to investigate whether their conduct might inadvertently lead to trespass.⁷⁰

B. Unintentional Encroachment

One might be tempted to explain the foregoing trespass rules on the basis of the temporary nature of the incursion. The unintentional trespasser did not intend to flout the owner's rights at the time of the trespass, and the owner can usually be made whole through money damages. The continuing trespass presents a different problem. In these cases, the defendant can no longer claim innocence once the owner calls attention to the trespass. The owner's loss, moreover, extends into the indefinite future and may be harder to remedy with damages. But courts sometimes apply a liability rule even in these cases, especially where the trespasser has already invested substantially into the offending encroachment.

⁶⁷ See, e.g., *Edgerton v. H.P. Welch Co.*, 74 N.E.2d 674, 679 (Mass. 1947) ("The trend of modern authority is that an unintended intrusion upon the land in possession of another does not constitute a trespass."); *Hudson v. Peavey Oil Co.*, 566 P.2d 175, 177 (Or. 1977) ("[L]iability for trespass will not be imposed for an unintentional trespass unless it arises out of defendant's negligence or the carrying on of an extrahazardous activity.").

⁶⁸ See, e.g., *Brown v. Collins*, 53 N.H. 442, 444 (Super. Ct. 1873); *Slattery v. Haley*, [1923] 3 D.L.R. 156, 160 (Can. Ont. App. Div.). The Restatement clarifies that the unintentional, non-negligent actor who enters someone else's land is not liable "even though the entry causes harm." RESTATEMENT (SECOND) OF TORTS § 166 (AM. LAW INST. 1965).

⁶⁹ See RESTATEMENT (SECOND) OF TORTS § 165 (AM. LAW INST. 1965).

⁷⁰ As noted above, however, the law ought not require the non-owner to search past the point where the marginal costs of the search exceed the marginal benefits of precaution. See sources cited *supra* note 42.

The paradigmatic situation arises when the defendant accidentally builds part of a structure on a neighbor's land due to a surveying error or similar mistake. The prevailing approach—articulated in *Golden Press, Inc. v. Rylands*⁷¹—is to conduct a balancing test where the court weighs the plaintiff's loss against the hardship that would ensue from forcing the defendant to remove the encroachment.⁷² Where the defendant's loss would be excessive, the court does not enter an injunction but instead requires the defendant to pay for the land taken.⁷³ This approach implements a liability rule that effectively forces the sale of the plaintiff's property.⁷⁴

This balancing test responds to the risk of opportunism that arises once the defendant has sunk resources into a costly improvement while believing in good faith that the construction was lawful. Armed with the threat of injunctive relief, the owner could engage in holdup behavior by demanding damages up to the total costs of demolishing and rebuilding the improvement.

One might also be concerned at the potential for opportunism on the part of encroachers and other trespassers who might like to encroach to force a sale. Given that these cases excuse only unintentional encroachment, however, willful trespassers do not receive the same lenity.⁷⁵ Because the liability rule only applies where the defendant acts in good faith, moreover, this regime also denies assistance to those opportunists who might try to avoid “intentional” trespass through willful blindness.⁷⁶

⁷¹ 235 P.2d 592 (Colo. 1951).

⁷² See *id.* at 595; see also *Duncan v. Akers*, 262 N.E.2d 402, 407 (Ind. App. 1970) (explaining “the modern trend favors relief in equity to an innocent improver of another’s real estate who has acted under a mistake”). While many states have adopted this approach, it is not universal; Massachusetts remains a prominent exception. See, e.g., *Brink v. Summers*, 227 N.E.2d 476, 477 (Mass. 1967); *Beaudoin v. Sinodinos*, 48 N.E.2d 19, 24 (Mass. 1943).

⁷³ See *Mannillo v. Gorski*, 255 A.2d 258, 264 (N.J. 1969) (observing that “the true owner may be forced to convey the land so occupied upon payment of the fair value thereof”). In cases where the entire structure falls on the plaintiff’s land, the court may offer the plaintiff the alternative of paying for the value of the improvement and retaining the land. See, e.g., *Somerville v. Jacobs*, 170 S.E.2d 805, 813 (W. Va. 1969).

⁷⁴ See *Mannillo*, 255 A.2d at 264. One might observe that property law operates as a strict liability regime when it requires the unwitting encroacher to pay: the defendant is still a trespasser and must pay for the harm she causes. But strict liability neither requires nor implies property-rule protection. The willful encroacher would face a property rule via injunctive relief and possible punitive damages, while the unwitting encroacher is instead subject to a liability rule via compensatory damages for the land taken.

⁷⁵ See *Golden Press, Inc.*, 235 P.2d at 595 (“Where the encroachment is deliberate and constitutes a willful and intentional taking of another’s land, equity may well require its restoration regardless of the expense of removal as compared with the damages suffered therefrom . . .”).

⁷⁶ See *id.*; see also Kelvin H. Dickinson, *Mistaken Improvers of Real Estate*, 64 N.C. L. REV. 37, 59–60 (1985) (finding that state law requires subjective good faith as well as reasonableness in those cases where the mistaken improver seeks restitution from the landowner).

C. Necessity

The doctrine of necessity allows non-owners to trespass on others' property to avoid grave harm. But it does not provide a complete defense. Instead, it shifts the protection of ownership rights from a property rule to a liability rule. The textbook case of *Vincent v. Lake Erie Transportation Co.* illustrates the point: the doctrine of necessity authorized a steamship owner to tie his ship to the dock to secure it during a fierce storm, but he was obliged to pay for the damages that resulted when the ship crashed against the dock.⁷⁷ In this way the doctrine facilitates socially valuable transfers of property rights where the transaction costs of identifying owners and bargaining with them are prohibitive given the exigency of the circumstances.

What is sometimes overlooked is that the doctrine of necessity also deals with potential holdout problems: it permits use of another's property to avoid grave harm even when the owner objects. Consider the other canonical docking case, *Ploof v. Putnam*.⁷⁸ The dock owner's agent in that case unmoored a boat that had docked in an emergency, injuring the passengers and destroying the boat.⁷⁹ Applying the doctrine of necessity, the court shifted the loss onto the dock owner.⁸⁰ Here the doctrine responded not to the costs of negotiating per se—the dock owner's agent was present to bargain—but to the holdout problem that arose because exigent circumstances gave the property owner monopolistic control over a lifesaving resource.⁸¹

The holdout problem at the root of the necessity doctrine is importantly different than that which arises in situations of unintentional encroachment. The encroachment cases deal with a holdout problem that emerges because of the impossibility of negotiations in circumstances where the trespasser is unaware of conflicting property rights. The necessity cases, by contrast, deal with the holdout problem that arises when the defendant is aware of the owner's rights but the owner demands an above-market price that capitalizes on the user's misfortune. In this way the doctrine of necessity illustrates property law's

⁷⁷ 124 N.W. 221, 222 (Minn. 1910).

⁷⁸ 71 A. 188 (Vt. 1908).

⁷⁹ *Id.* at 188–89.

⁸⁰ *Id.* at 189; see also RICHARD A. EPSTEIN, SKEPTICISM AND FREEDOM: A MODERN CASE FOR CLASSICAL LIBERALISM 98–100 (2003) (explaining that “[t]he owner who casts away the stranger in need can be sued for the harm that follows”).

⁸¹ *Ploof*, 71 A. at 188–89. Contract law deals with analogous concerns with the exploitation of others' misfortune through the concept of duress, which voids contracts made under coercion. See RESTATEMENT (SECOND) OF CONTRACTS § 175 (AM. LAW INST. 1981).

endorsement of liability rules in some cases even where interference with others' property is intentional.

D. Nuisance

Nuisance arises when a party interferes with an owner's reasonable use and enjoyment of her property in a manner that falls short of trespass.⁸² It might seem plausible to protect owners with a property rule in these cases. They typically involve circumstances where the tortfeasor acts intentionally, like where a party operates machinery that emits noise, soot, or other pollutants.⁸³ And these tortfeasors will often be able to identify the neighbors who are likely to be harmed, suggesting the possibility that the parties could negotiate and decide on a price for the interference.⁸⁴ On the other hand, property rules would give the neighboring land owners the power to engage in rent-seeking by holding out.⁸⁵ That is, the neighbors could leverage the threat of injunction to extract rents in excess of the actual harm caused by the nuisance and in doing so shut down activities that would otherwise generate a net social or economic benefit.

This tension has driven the courts to develop a more nuanced balancing test in deciding whether to answer nuisance with a property-rule remedy (injunction) or liability-rule remedy (damages). Pursuant to modern nuisance law, the court weighs several factors, including the social or economic utility of the tortfeasor's conduct against the gravity of the harms suffered by the plaintiff.⁸⁶ Courts often impose compensatory damages—rather than injunctive relief—where the nuisance generates significant economic value relative to the harm.⁸⁷ If the court can accurately appraise the actual damages, moreover, the approach is self-correcting: the tortfeasor will only engage in the noisome enterprise up to the point that it remains profitable to do so after paying out the relevant damages.⁸⁸ The resemblance between this balancing test and the one employed in cases of unwitting encroachment is worth noting: in both cases the court switches to a

⁸² RESTATEMENT (SECOND) OF TORTS § 821D (AM. LAW INST. 1979).

⁸³ *Id.*; accord Calabresi & Melamed, *supra* note 1, at 1127.

⁸⁴ Calabresi & Melamed, *supra* note 1, at 1127 (“[T]he polluter knows what he will do and, often, whom it will hurt.”).

⁸⁵ See *id.*; see also *supra* notes 16–24 and accompanying text.

⁸⁶ RESTATEMENT (SECOND) OF TORTS §§ 822, 826–31 (AM. LAW INST. 1979).

⁸⁷ The textbook example of this approach is *Boomer v. Atlantic Cement Co.*, 257 N.E.2d 870 (N.Y. 1970).

⁸⁸ See, e.g., Kaplow & Shavell, *supra* note 25, at 725 (“[T]he virtue of the liability rule is that it allows the state to harness the information that the injurer naturally possesses about his prevention cost.”) (emphasis omitted). But see A. Mitchell Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075, 1101 (1980) (“This result can be guaranteed, however, only if the court . . . sets liability equal to actual damages.”).

liability rule when entering injunctive relief would seem to result in economic waste.⁸⁹

It is also worth noting that modern nuisance law is quite different than the nuisance tort as it existed in the early common law. When brewers and tanners were sued for emitting offensive odors, for example, it was no defense under pre-industrial English law to argue that the community needed beer and leather.⁹⁰ It is beyond the scope of this Article to develop the historical account of the transformation of nuisance law in the transition from an agrarian economy to an industrial one. But it is clear that the industrial economy would have looked very different—if it could have emerged at all—if any given property owner held effective veto power over any activity that produced unwanted odors, sounds, or other forms of pollution.

E. State-Authorized Takings

The state's overt taking of private property also played a role in industrialization. The exercise of eminent domain for the benefit of the railroads throughout the United States is perhaps the most familiar example. Railroads require continuous right of way to function, and as such they are vulnerable to holdup.⁹¹ Any property owner along the route could hypothetically extort the railroad for far more than the market price of the land; the task of acquiring rights from a thousand such owners could be truly daunting.⁹² States solved this resource coordination problem by delegating their eminent domain power to railroads so they could acquire the necessary land at market value.⁹³

⁸⁹ See *supra* Section II.B.

⁹⁰ *Jones v. Powell* (1629) 123 Eng. Rep. 1155, 1156 (“[B]rew-houses are necessary, yet the rule in law is, sic utere tuo, ut alienum non lædas [use your own property so as not to injure another’s]”); Joel Franklin Brenner, *Nuisance Law and the Industrial Revolution*, 3 J. LEGAL STUD. 403, 403–06 (1974).

⁹¹ *Dayton Gold & Silver Mining Co. v. Seawell*, 11 Nev. 394, 411 (1876) (“A railroad, to be successfully operated, must be constructed upon the most feasible and direct route; it cannot run around the land of every individual who refuses to dispose of his private property upon reasonable terms.”).

⁹² *Cf. County of Wayne v. Hathcock*, 684 N.W.2d 765, 781–82 (Mich. 2004) (“[I]f owners of adjoining properties receive word of the original property owner’s windfall [due to a holdout strategy], they too will refuse to sell.”).

⁹³ See, e.g., *Mims v. Macon & W.R.R. Co.*, 3 Ga. 333, 335 (1847). As Daniel Kelly has shown, the Supreme Court and courts in each of the fifty states have upheld the use of eminent domain for assembling railways. Daniel B. Kelly, *The “Public Use” Requirement in Eminent Domain Law: A Rationale Based on Secret Purchases and Private Influence*, 92 CORNELL L. REV. 1, 1, 60 & n.278 (2006) (citing, for example, *Nat’l R.R. Passenger Corp. v. Boston & Maine Corp.*, 503 U.S. 407 (1992), and the state cases assembled in 2A NICHOLS’ THE LAW OF EMINENT DOMAIN (Julius L. Sackman et al. eds., rev. 3d ed. 1995)).

While eminent domain solved a set of immediate economic problems, this author does not mean to suggest that it was the ideal solution as a matter of public policy. History shows that railroads quickly overcame their initial economic vulnerability, and railroad tycoons are now best remembered for their unprecedented

The mill acts provide an even earlier example where states introduced liability rules to support economic production. State by state, these acts allowed mill owners to flood neighboring land for purposes of creating dams to operate water-powered mills so long as they paid damages, often at a premium defined by statute.⁹⁴ As originally conceived, these acts served a modest communitarian purpose, ensuring that mill operators could obtain the property rights they needed to grind grain for the local community.⁹⁵

Courts in some states later construed the acts to cover mills that operated purely for private gain like the large, water-powered textile mills of the First Industrial Revolution in the early nineteenth century.⁹⁶ Writing for the Supreme Judicial Court of Massachusetts, Justice Samuel Putnam justified this reading of the statute on the grounds of economic progress.⁹⁷ Without such allowances, he warned that “[t]he will or caprice of an individual would often defeat the most useful and extensive enterprises.”⁹⁸ These decisions were nonetheless controversial at the time. These mills disrupted local life without providing commensurate local benefits, and even today we might question the court’s approach as a matter of statutory interpretation or economic policy.⁹⁹ As applied,

dominance in both industry and politics in the late nineteenth century. See, e.g., MATTHEW JOSEPHSON, *THE ROBBER BARONS: THE CLASSIC ACCOUNT OF THE INFLUENTIAL CAPITALISTS WHO TRANSFORMED AMERICA’S FUTURE* 347–61 (1962); Paul Stephen Dempsey, *The Rise and Fall of the Interstate Commerce Commission: The Tortuous Path from Regulation to Deregulation of America’s Infrastructure*, 95 MARQ. L. REV. 1151, 1156 (2012) (“So immense were the powers of the American robber barons that they became the law unto themselves.”).

The exercise of eminent domain was liable to criticism, moreover, for taking private property not for state use but instead for the ostensibly private benefit of the railroads. Debates over the propriety and legality of exercising eminent domain to transfer property from one private owner to another continue today through cases like *Kelo v. City of New London*, 545 U.S. 469 (2005).

⁹⁴ For more detail on the acts as implemented across different jurisdictions, see *Head v. Amoskeag Mfg. Co.*, 113 U.S. 9, 16–18 (1885) (discussing mill acts in effect at the time), and Comment, *The Public Use Limitation on Eminent Domain: An Advance Requiem*, 58 YALE L.J. 599, 605 n.32 (1949) (collecting statutes). Henry Smith also offers a helpful account of the limits on these regimes, including the requirement in many states that the mill operator had to apply for advance approval before any flooding. See Smith, *supra* note 30, at 1736–37.

⁹⁵ See Kelly, *supra* note 93, at 43 (“[G]rist mills in colonial America . . . produce a positive externality of such significance that eminent domain may be necessary to supplement private incentives and ensure that these transactions occur.”).

⁹⁶ See Carol M. Rose, *Energy and Efficiency in the Realignment of Common-Law Water Rights*, 19 J. LEGAL STUD. 261, 278 & n.57 (1990).

⁹⁷ *Bos. & Roxbury Mill Corp. v. Newman*, 29 Mass. 467, 481 (1832).

⁹⁸ *Id.* at 480. Morton Horwitz credits these decisions with introducing the notion to property law “that a conception of absolute and exclusive dominion over property was incompatible with the needs of industrial development.” Morton J. Horwitz, *The Transformation in the Conception of Property in American Law, 1780–1860*, 40 U. CHI. L. REV. 248, 278 (1973).

⁹⁹ See, e.g., *Hay v. Cohoes Co.*, 3 Barb. 42, 47 (N.Y. Gen. Term 1848) (criticizing the Massachusetts approach).

however, the acts paved the way for the sorts of industrialization that fit with nineteenth-century notions of economic progress.

* * *

The foregoing doctrines highlight a range of circumstances where departure from property rules can be justified in real property. Though many of the same circumstances arise in IP disputes, the following Parts will show that patent and copyright tend not to make the same departures.

III. PROPERTY RULES IN PATENT

One might think that patent, on its face, had struck a healthy balance between property rules and liability rules. The Supreme Court has instructed the lower courts to end the practice of granting automatic injunctions for patent infringement.¹⁰⁰ Damages for infringement, moreover, are supposed to approximate “reasonable royalties” and thereby give effect to a liability rule.¹⁰¹

In practice and in doctrine, however, property rules still apply in several circumstances where they are suboptimal. Courts still routinely grant injunctions so long as the patent holder practices its patent.¹⁰² Patent’s purportedly reasonable royalties also err towards the supra-compensatory because Federal Circuit precedent discards several factors that would constrain damages to the actual market value of a license.¹⁰³ These remedies give rise to opportunism in cases of unwitting infringement, especially those cases where the patent contributes only a fraction of the product’s total value.

A. *Injunctions Post-eBay*

Patent enforces a property rule through injunctive relief in the majority of cases. Such relief is frequently warranted—defendants who had reasonable notice of a patent claim should generally not be able to practice the patent without negotiating for a license. While courts retain the equitable discretion to withhold injunctive relief, they seldom do so in practice. This approach can become problematic in cases of notice or market failure.

¹⁰⁰ See *eBay, Inc. v. MercExchange, LLC*, 547 U.S. 388 (2006).

¹⁰¹ 35 U.S.C. § 284 (2012); see, e.g., *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1223 (Fed. Cir. 1995).

¹⁰² See *infra* Section III.A.

¹⁰³ See *infra* Section III.B.

The Federal Circuit entered injunctions as a matter of course upon a finding of patent infringement prior to the Supreme Court's 2006 decision in *eBay, Inc. v. MercExchange, LLC*.¹⁰⁴ *eBay* held that patent injunctions should not be automatic but must instead satisfy the same four-factor test as other permanent injunctions, requiring the plaintiff to demonstrate irreparable harm; the inadequacy of monetary damages; that the balance of hardships between the plaintiff and defendant favors equitable relief; and that the injunction be consistent with the public interest.¹⁰⁵ The revised test nonetheless remains silent on the matter of culpability and thereby fails to connect the issuance of a property remedy to equity's historical concerns with the willfulness of the infringement.¹⁰⁶

In practice the lower courts have also applied the Supreme Court's restriction on injunctive relief narrowly. An empirical study by Christopher Seaman finds that the lower courts consistently deny injunctive relief to non-practicing entities (NPEs), i.e., those patentees who have not independently commercialized their inventions.¹⁰⁷ But he also finds that courts continue to grant injunctive relief in the vast majority of cases where the patentee competes in the same product market as the infringer.¹⁰⁸ This practice gives patentees undue leverage in many cases of unwitting infringement and is especially problematic when it gives the

¹⁰⁴ 547 U.S. at 391 (recounting the Federal Circuit's "general rule that courts will issue permanent injunctions against patent infringement absent exceptional circumstances").

¹⁰⁵ See *id.*

¹⁰⁶ See Henry E. Smith, *Equity as Second-Order Law: The Problem of Opportunism* 56 (Harvard Pub. Law, Working Paper No. 15-13), <http://ssrn.com/abstract=2617413>. Smith argues that willfulness should counsel in favor of injunctive relief. *Id.* ("What most needs to be added to the *eBay* 'test' is a concern for good faith versus bad faith. Disproportionate hardship should not soften the response to a *knowing* violation of others' rights."). This author would add that non-willfulness should counsel in the other direction, weighing against injunctive relief.

¹⁰⁷ See generally Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, 101 IOWA L. REV. 1949 (2016). As Christopher Seaman points out, this approach seems mistaken in light of the Court's instructions that the lower courts should not categorically deny relief to these sorts of entities. *Id.* at 2003.

Patent trolls often fall into the NPE category insofar as they seek to monetize their patents through licensing or litigation without putting the patent to direct use. See *supra* note 15 and accompanying text.

¹⁰⁸ See Seaman, *supra* note 107, at 2003. While many commentators have limited their analysis of the problems associated with injunctive relief to those cases where the patentee is an NPE, Ted Sichelman has forcefully explained that the same concerns apply even where the patentee is a competitor. As he states:

[M]anufacturing patentees with injunctive threats can—when switching costs are abnormally high—effectively extract or cause systematic deviations from the optimal profits or payment for a given innovation, as well as unnecessarily raise consumer deadweight losses if the infringer cannot design around the patent or the design-around requires a long period of time.

Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEX. L. REV. 517, 548 (2014).

patentee the power to enjoin a product that derives significant portions of its value from non-infringing components.

To understand why granting injunctions regardless of notice opens the door to opportunism, consider the plight of a hypothetical independent inventor. Inventor A is working to develop a new widget. Early in the process, A searched diligently for any patents that would cover the design she was pursuing. Finding no such patent, A proceeded to make substantial investments in developing, producing, and marketing the product. Another party, B, sends a cease and desist letter after A has already sunk \$10 million into the product. B holds a patent that A did not find during her search. If B obtains an injunction at this point, he can behave opportunistically. A stands to lose \$10 million if the product is enjoined, a sum that includes not only the value added by B's patent but also the value of A's own design work, manufacturing, and marketing. In these circumstances B can demand far more than the value his patent contributes to the product—he can demand as much as it would cost for A to pursue her second best option at this point, which is to incur new design and modification costs to reconfigure the product so as to purge any infringing elements. Injunctive relief is problematic in this scenario because it facilitates rent-seeking rather than encouraging innovation.

B. “Reasonable Royalty” Damages

As an alternative to injunctive relief, patent law also permits awards of damages in the form of “reasonable royalties.”¹⁰⁹ On the surface, patent damages might therefore seem governed by a liability rule. Yet, in practice, the damages tend to be supra-compensatory and introduce many of the problems associated with property rules.¹¹⁰ As with injunctive relief, moreover, the law does not tailor the damages to the defendant's culpability. The willful patent infringer faces a damage multiplier of “up to three times the amount,” but damages are not reduced for good faith or merely negligent infringement.¹¹¹

¹⁰⁹ 35 U.S.C. § 284 (2012) (“[T]he court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty . . .”).

¹¹⁰ See Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 667 (2009) (“[T]he situation has gotten so bad that some patentees who *can* prove lost profits elect instead to seek a ‘reasonable’ royalty that is far in excess both of what the parties would have negotiated and of the actual losses the patentee suffered.”).

¹¹¹ 35 U.S.C. § 284. This asymmetry has led to perverse outcomes: “Companies and lawyers tell engineers not to read patents in starting their research, lest their knowledge of the patent disadvantage the company by making it a willful infringer.” Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19, 21 (2008).

Patent law treats culpability differently where induced rather than direct infringement is concerned. Induced infringement—encouraging others to infringe a patent—carries a scienter requirement, and the Supreme

At most, reasonable royalty damages are meant to compensate the patentee and thereby make her as well off as she would have been if the defendant had not infringed.¹¹² Reasonable royalty damages often prove supra-compensatory, however, because courts are inconsistent in their valuation of the royalties and their approach to apportionment.

True compensatory royalties would be constrained by consideration of the actual losses to the patent owner or benefits to the accused infringer. These sums could typically be measured by reference to the infringer's next-best alternative to using the patent.¹¹³ Say, for example, that entrepreneur A is building a computer and needs a fan to keep the device from overheating. A might seek a license from patentee B, whose patented fan design would do the job. Because patentee C offers a competing fan patent for \$1 million, B could demand no more than \$1 million in an *ex ante* royalty negotiation.¹¹⁴ Accordingly, if A infringes because he is ignorant of the patent through no fault of his own, then it would seem that \$1 million is the maximum loss that B should be able to claim as a reasonable royalty. The Federal Circuit has unfortunately rejected this sort of limitation.¹¹⁵ The further patent damages deviate from such constraints, the more supra-compensatory and therefore like a property rule they become. While such damages may be justifiable in cases of willful or even negligent infringement, these penalties also threaten the innovation incentives of those inventors proceeding in good faith.

Court has recently made clear that willful blindness satisfies that requirement. See *Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 768, 771 (2011). See generally Timothy R. Holbrook, *The Supreme Court's Quiet Revolution in Induced Patent Infringement*, 91 NOTRE DAME L. REV. 1007 (2016) (analyzing the Supreme Court's treatment of scienter for induced infringement). Indirect infringers therefore have an incentive to take greater care in investigating potential infringement.

¹¹² See 35 U.S.C. § 284; see also Timothy R. Holbrook, *Liability for the "Threat of a Sale": Assessing Patent Infringement for Offering to Sell an Invention and Implications for the On-Sale Patentability Bar and Other Forms of Infringement*, 43 SANTA CLARA L. REV. 751, 790–91, 796–97 (2003) (identifying circumstances where reasonable royalties yield a windfall because the patentee faces little pecuniary harm). But see Sichelman, *supra* note 108, at 568–69 (arguing that patent law should focus not on making patentees whole but instead on optimizing innovation incentives without introducing unnecessary deadweight losses or barriers to follow-on innovation).

¹¹³ See William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 392 (2016).

¹¹⁴ The same result would follow if there were no patentee C and A's next best option was instead to design around the patent through \$1 million in research and development.

¹¹⁵ See *Mars, Inc. v. Coin Acceptors, Inc.*, 527 F.3d 1359, 1373 (Fed. Cir. 2008) (“[Defendant] is wrong as a matter of law to claim that reasonable royalty damages are capped at the cost of implementing the cheapest available, acceptable, non-infringing alternative.”), *amended on other grounds* by 557 F.3d 1377 (2009); see also *Monsanto Co. v. Ralph*, 382 F.3d 1374, 1383 (Fed. Cir. 2004) (rejecting the argument that “a reasonable royalty deduced through a hypothetical negotiation process can never be set so high that no rational self-interested wealth-maximizing infringer acting *ex ante* would ever have agreed to it”).

Courts also sometimes award royalties that exceed the actual value of the patent due to a timing issue. Federal Circuit precedent directs the courts to assess what the defendant would have been willing to pay in a hypothetical negotiation at the time infringement began.¹¹⁶ This point in time will often come after the defendant has invested significant resources into the design, manufacturing equipment, or marketing of the product.¹¹⁷ In these situations the defendant would be willing to pay not only for the value of the patent, but also to avoid the costs of switching to the next-best option after the fact.¹¹⁸ There is nonetheless some uncertainty in the doctrine regarding exactly which point in time the royalties should be calculated, and several commentators have urged the courts to avoid this problem by setting the hypothetical negotiation not at the time of the first infringing act, but instead at the time when the defendant was deciding whether to use the patent or its next-best alternative.¹¹⁹

To award royalties that are compensatory rather than punitive, courts must also engage in apportionment. Apportionment requires damages to track the value the patent contributed to the infringing product, excluding the value added by other elements of the product not covered by the patent.¹²⁰ Sometimes the patent is the determining feature that drives consumer demand for a product, such that each sale of the infringing product deprives the patentee of a sale.¹²¹ In these cases, courts can legitimately impose the “entire market value rule,” awarding the patentee all the proceeds from the sale of each product.¹²²

In cases where the infringed patent contributes only part of the product’s value, however, the entire market value rule would provide a windfall to the plaintiff and dampen incentives to create complex products that embody several patents.¹²³ In 1995, the Federal Circuit nonetheless adopted a “functional unit” test allowing patentees to invoke the entire market rule to claim damages on any components of an infringing device that work together with the patented component, and in doing so ushered in nearly twenty years of awarding entire market value damages without adjustments for the value of the non-infringing

¹¹⁶ See, e.g., *VirnetX v. Cisco Sys., Inc.*, 767 F.3d 1308, 1326 (Fed. Cir. 2014); see also FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE: ALIGNING NOTICE AND REMEDIES WITH COMPETITION* 22 (2011).

¹¹⁷ FED. TRADE COMM’N, *supra* note 116; Lee & Melamed, *supra* note 113, at 426.

¹¹⁸ Lee & Melamed, *supra* note 113, at 426.

¹¹⁹ FED. TRADE COMM’N, *supra* note 116; Lee & Melamed, *supra* note 113, at 426–27.

¹²⁰ *VirnetX*, 767 F.3d at 1326.

¹²¹ See *id.*

¹²² See *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1336 (Fed. Cir. 2009).

¹²³ Brian J. Love, *Patentee Overcompensation and the Entire Market Value Rule*, 60 STAN. L. REV. 263, 278–80 (2007).

components.¹²⁴ The Federal Circuit subsequently amended its precedent in the 2014 case *VirnetX v. Cisco*, where it reasserted that principles of apportionment apply in cases involving multicomponent products.¹²⁵

IV. PROPERTY RULES IN COPYRIGHT

Copyright is even more consistent than patent in imposing property rules in the event of infringement.¹²⁶ As with patent, courts have discretion in deciding whether to enter injunctive relief for copyright infringement.¹²⁷ Copyright's statutory damages are mandatory, however, and they effectuate a property rule because they are untethered to actual damages and tend to operate as a penalty.¹²⁸ Unlike trespass on real property, the defendant's good faith or ignorance does not shield against the application of a property rule in copyright.¹²⁹ Copyright's existing defenses and compulsory licensing regimes, moreover, provide only a partial answer to the excesses of its damages scheme.¹³⁰

A. Statutory Damages Are Mandatory

In a comprehensive analysis of copyright damage awards, Pamela Samuelson and Tara Wheatland concluded that “[a]wards of statutory damages are frequently arbitrary, inconsistent, unprincipled, and sometimes grossly excessive.”¹³¹ Copyright's statutory damages often prove disproportionately large because they are divorced from any meaningful consideration of the plaintiff's loss, the defendant's gain, or the defendant's blameworthiness. The

¹²⁴ See *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1550 (Fed. Cir. 1995) (en banc); Love, *supra* note 123, at 277.

¹²⁵ See *VirnetX*, 767 F.3d at 1326.

¹²⁶ Accord Michael E. Kenneally, *Commandeering Copyright*, 87 NOTRE DAME L. REV. 1179, 1220 (2012) (“In copyright law, property rules predominate.”).

¹²⁷ 17 U.S.C. § 502(a) (2012); see *N.Y. Times v. Tasini*, 533 U.S. 483, 505–06 (2001). But see Jiarui Liu, *Copyright Injunctions After eBay: An Empirical Study*, 16 LEWIS & CLARK L. REV. 215, 218 (2012) (finding that injunctions are typically granted when copyright infringement is found). For the sake of parsimony, this author has confined the analysis of IP injunctions to the foregoing discussion of patent law, where the contrast between the Supreme Court's instructions and the Federal Circuit's implementation is instructive.

¹²⁸ See 17 U.S.C. § 504(c)(1)–(2). In many consumer cases the pain of copyright's statutory damages may actually prove greater than that of injunctive relief. Consider the plight of the consumer who accidentally infringes the copyright in the MP3 file of a musical track that retails for \$0.99—perhaps she exceeded the terms of a license, or perhaps she downloaded it from an online store that was actually a front for music piracy. The consumer would much prefer to face injunctive relief, requiring her to delete or restrict her use of the file, than to pay copyright's statutory damages of \$750 or more per work.

¹²⁹ See *infra* notes 136–42 and accompanying text.

¹³⁰ See *infra* Section IV.B.

¹³¹ Pamela Samuelson & Tara Wheatland, *Statutory Damages in Copyright Law: A Remedy in Need of Reform*, 51 WM. & MARY L. REV. 439, 441 (2009).

Copyright Act directs courts to award damages of \$750–\$30,000 per work infringed, with the ceiling raised to a maximum of \$150,000 in cases of “willful infringement.”¹³² These damages are more than sufficient to deter most parties from knowingly engaging in unauthorized copying and may in practice push risk-averse users—and their financial backers—to seek a license even where none is needed.¹³³

The copyright plaintiff can elect to recover actual damages or lost profits in those cases where statutory damages would be insufficient.¹³⁴ But the plaintiff seldom has good reason to do so. Compensatory damages of this sort are only worth pursuing if the actual damages are significantly greater than the statutory range even after adjustment for the cost and uncertainty of proving the actual damages. When pursuing actual damages, moreover, the profits recovered are offset by any profits attributable to the defendant’s own work.¹³⁵ Copyright’s statutory damages are appealing because they require no such discounting.

Copyright nominally features an innocent infringement defense,¹³⁶ but this defense provides no protection to the typical unwitting infringer. The defense is unavailable in practice because it applies only where the work is missing a copyright notice (“©” along with the year of publication and name of the owner).¹³⁷ The Act effectively instructs the courts to recognize infringement as innocent only in cases where the defendant has grounds not to know whether the work is copyrighted. This particular mistake, however, is seldom the problem. The reasonable defendant should know the work is copyrighted—by default, nearly every creative work is protected from the moment of fixation—yet may accidentally infringe by breaching a condition in a software copyright license,¹³⁸

¹³² 17 U.S.C. § 504(c)(1)–(2).

¹³³ See generally Gibson, *supra* note 13.

¹³⁴ 17 U.S.C. § 504(a)–(b).

¹³⁵ 17 U.S.C. § 504(b).

¹³⁶ See 17 U.S.C. § 504(c)(2).

¹³⁷ Section 401(d) of the Copyright Act states:

If a notice of copyright in the form and position specified by this section appears on the published copy or copies to which a defendant in a copyright infringement suit had access, then no weight shall be given to such a defendant’s interposition of a defense based on innocent infringement in mitigation of actual or statutory damages, except as provided in the last sentence of section 504(c)(2).

17 U.S.C. § 401(d). Section 504(c)(2) provides for the remission of statutory damages for accidental infringement only in the narrow circumstance that a “nonprofit educational institution, library, or archives” or “public broadcasting entity” mistakenly but reasonably believed that the use in question qualified as a fair use. 17 U.S.C. § 504(c)(2).

¹³⁸ See, e.g., BJ Ard, *Notice and Remedies in Copyright Licensing*, 80 Mo. L. REV. 313, 331–34 (2015)

miscalculating the availability of the fair use defense,¹³⁹ or engaging in any number of other routine uses of digital works that create potentially infringing copies.¹⁴⁰ Infringement in these scenarios is the result of other notice failures that copyright law does not address.

Statutory damages remain mandatory, moreover, even in the rare case where the defendant can establish the innocent infringement defense. The defense merely lowers the applicable range of statutory damages so that the court may award damages as low as \$200 per work, up to the standard maximum of \$30,000.¹⁴¹ Cases that involved the innocent infringement of multiple works could therefore still result in damages out of proportion to any harm. As with non-innocent infringement, moreover, the plaintiff who was concerned that the statutory range would yield insufficient damages could simply elect to sue for actual damages and lost profits.¹⁴²

B. Exceptions

Copyright departs from property-rule protection for some forms of non-consensual copying through the fair use defense and a handful of industry-specific exceptions and compulsory licenses. As the following sections will argue, however, these exceptions are insufficient because they fail to cover a range of socially beneficial uses by consumers and start-ups where notice failures and other transaction costs render licensing impractical.

1. Fair Use

Fair use is a powerful defense against copyright infringement. If the defendant can establish that a use is “fair” under the doctrine’s four-factor balancing test, then the defendant is absolved of all liability.¹⁴³

(explaining how the risk of unwitting infringement generated by such licenses exacerbates the problems of consumer boilerplate and threatens the legitimacy of the copyright regime); Kenneally, *supra* note 126, at 1229–32 (explaining how opportunistic copyright licensors may “gerrymander” their licenses to extend property-rule protection to common contractual terms).

¹³⁹ See, e.g., Oren Bracha & Patrick R. Goold, *Copyright Accidents*, 96 B.U. L. REV. 1025, 1029, 1072–73 (2016) (problematizing copyright law’s reliance on strict liability for accidents like these).

¹⁴⁰ See Tehranian, *supra* note 10, at 543.

¹⁴¹ 17 U.S.C. § 504(c)(2); see also Samuelson & Wheatland, *supra* note 131, at 474–75 (finding “only . . . two cases in which a court ever awarded statutory damages in an amount lower than the ordinary infringement minimum”).

¹⁴² See 17 U.S.C. § 504(b).

¹⁴³ 17 U.S.C. § 107 (“[T]he fair use of a copyrighted work . . . is not an infringement of copyright.”). See generally Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U. PA. L. REV. 549 (2008) (assessing the relative weight of the factors); David Nimmer, “*Fairest of Them All*” and *Other*

This defense provides a partial answer to the problems associated with property rules. Wendy Gordon observed in 1982 that fair use often operates to solve transaction-cost problems.¹⁴⁴ In the famous *Sony Betamax* decision, the Court relied on fair use to authorize home taping of television programs in light of the apparent impossibility of obtaining licenses to record each program.¹⁴⁵ In authorizing parodies and similar critical works, fair use likewise overcomes expected holdup problems.¹⁴⁶ Copyright owners might be reluctant to authorize parodies or other derivative works that exposed the flaws in their own creations, but society benefits from the production of these works because they simultaneously provide social commentary and improve the market for creative works by increasing consumers' information about the quality of the offerings.¹⁴⁷ Fair use allows for such criticism.

The defense nonetheless provides only a partial answer, for three reasons. First, the fair use test does not recognize notice failures: neither the copyright owner's failure to give adequate notice nor the infringer's reasonable belief that the copying was lawful is relevant to the defense. Fair use could of course be amended to account for these problems. Oren Bracha and Patrick Goold recently proposed, for example, that courts should use fair use to shield the defendant from liability if, prior to infringement, it made a good faith determination that its conduct was non-infringing.¹⁴⁸ Such revision would mark a welcome change of pace, and it would resonate with the defense's common law origins and the discretion that courts have retained subsequent to the defense's codification. As a first step towards this change, Congress would need to strike the instruction at Paragraph 504(c)(2) of the Copyright Act that even the "innocent" infringer is liable for mandatory statutory damages.¹⁴⁹

Second, even though fair use allows for balancing, the test is more constrained than the balancing tests discussed above in the context of real property law. The test instructs courts to consider the potential harm to the

Fairy Tales of Fair Use, 66 LAW & CONTEMP. PROBS. 263 (2003) (same).

¹⁴⁴ See Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COLUM. L. REV. 1600, 1612–13 (1982); see also Wendy J. Gordon, *Market Failure and Intellectual Property: A Response to Professor Lunney*, 82 B.U. L. REV. 1031, 1034 (2002) (asserting that a range of market failures other than those arising from transaction costs—including the inability to internalize positive externalities of the use—also justify applying the fair use doctrine).

¹⁴⁵ See *Sony Corp. of Am. v. Universal City Studios, Inc. (Sony Betamax)*, 464 U.S. 417, 454–55 (1984).

¹⁴⁶ Gordon, *Fair Use as Market Failure*, *supra* note 144, at 1632–35.

¹⁴⁷ *Id.* at 1633–34; Molly Shaffer Van Houweling, *Touching and Concerning Copyright: Real Property Reasoning in MDY Industries, Inc. v. Blizzard Entertainment, Inc.*, 51 SANTA CLARA L. REV. 1063, 1084 (2011).

¹⁴⁸ See Bracha & Goold, *supra* note 139, at 1029.

¹⁴⁹ See 17 U.S.C. § 504(c)(2) (2012).

copyright owner by way of the fourth fair use factor, which requires examining the effect of the use upon potential markets for the copyright owner.¹⁵⁰ In addition, the first factor of the test directs courts to consider the potential benefits of the use to the public by assessing the purpose and character of the use,¹⁵¹ and the prefatory text of § 107 expressly identifies certain educational and journalistic uses as examples of fair use.¹⁵² Unlike the balancing tests utilized in tangible property law for building encroachment cases or the nuisance tort,¹⁵³ however, no prong of the test inquires into the costs and benefits of the use to the infringer. This omission heightens the risk that the infringement damages will prove excessively punitive relative to the defendant's conduct.

Finally, fair use provides no assurances prior to the defendant's investment of resources into the contested use because there are no effective *ex ante* mechanisms for determining whether a use is fair prior to an infringement lawsuit.¹⁵⁴ Copyright owners can accordingly threaten risk-averse users with the prospect of injunctive relief or statutory damages to compel them to pay licensing fees in excess of a reasonable market rate. This dynamic contributes to the underproduction of socially desirable works that build on the copyrighted material of others.

2. Industry-Specific Exceptions

Congress has established statutory licenses to cover specific industries and uses, removing property-rule protection. Compulsory licenses like these cover the recording, distribution, or transmission of music and television broadcasts, where Congress has enacted mechanisms to set the price for use.¹⁵⁵ Congress

¹⁵⁰ 17 U.S.C. § 107(4). *But see* Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited*, 82 B.U. L. REV. 975, 1014 (2002) (problematising the test's use of the owner's private harm as a proxy for public harm).

¹⁵¹ 17 U.S.C. § 107(1).

¹⁵² *Id.* § 107.

¹⁵³ *See supra* Sections II.B & II.D.

¹⁵⁴ Copyright scholarship criticizes the lack of such mechanisms at length. *See, e.g.*, Michael W. Carroll, *Fixing Fair Use*, 85 N.C. L. REV. 1087 (2007); Nimmer, *supra* note 143; R. Anthony Reese, *Innocent Infringement in U.S. Copyright Law: A History*, 30 COLUM. J.L. & ARTS 133 (2007). The absence of these mechanisms in copyright contrasts with the availability of preclearance mechanisms for real property. *See infra* Section V.B.

¹⁵⁵ *See, e.g.*, 17 U.S.C. § 115 (establishing a statutory licensing scheme for making and distributing recordings of nondramatic musical works); *id.* § 111(c)–(e) (establishing a statutory licensing scheme for cable television's retransmission of broadcast programming); *id.* § 114(d)(1) (establishing a statutory licensing scheme for non-subscription digital audio transmission such as Internet radio); *id.* § 114(d)(2) (establishing a statutory licensing scheme for subscription-based digital audio transmission). Scholars have suggested expanding the universe of compulsory licenses to cover consumers' otherwise infringing activity. At the height of the file-sharing litigation of the early 2000s, for example, William Fisher and Neil Netanel proposed compulsory

has also enacted zero-price licenses (or a “no-liability” rule) for certain industries: it is not infringement for the owner of a copy of a computer program to make copies in the course of using the software,¹⁵⁶ or for an Internet service provider to transmit its users’ infringing content so long as it complies with the DMCA;¹⁵⁷ libraries and archives have wide berth in making back-up copies or even making copies for the public;¹⁵⁸ and Congress has consistently refused to require terrestrial radio stations to pay public-performance royalties to play music or other sound recordings over the airwaves.¹⁵⁹ These exceptions play an important role in ameliorating the drawbacks of property rules: most of these exceptions, after all, cover industries where the costs of negotiating individual licenses would be high or situations where the putative infringer would be ignorant of any infringement.

This approach nonetheless has shortcomings. The piecemeal approach to exceptions tends to favor organized industry interest groups who can lobby for carveouts rather than addressing the concerns of consumers or upstart industries.¹⁶⁰ Relatedly, these compulsory licenses are limited in their focus on consumptive or distributive uses of copyrighted works, i.e., the copying or retransmission of existing works¹⁶¹ or routine home use of retail software.¹⁶² Unlike analogous legislative interventions in real property—like the mill acts¹⁶³—they do not provide entrepreneurs with rights that would allow them to engage in productive uses. With limited exceptions, like the law’s narrow allowance for “cover” recordings of musical compositions,¹⁶⁴ these statutory exceptions do not allow users to build on or combine existing works to create

licensing schemes to cover users’ downloading of MP3s. See WILLIAM W. FISHER III, PROMISES TO KEEP: TECHNOLOGY, LAW, AND THE FUTURE OF ENTERTAINMENT 199–258 (2004); Neil Weinstock Netanel, *Impose a Noncommercial Use Levy to Allow Free Peer-to-Peer File Sharing*, 17 HARV. J.L. & TECH. 1, 4 (2003).

¹⁵⁶ 17 U.S.C. § 117(a).

¹⁵⁷ *Id.* § 512.

¹⁵⁸ *Id.* § 108; *id.* § 504(c)(2).

¹⁵⁹ See U.S. COPYRIGHT OFFICE, REGISTER OF COPYRIGHTS, COPYRIGHT AND THE MUSIC MARKETPLACE 43–46 (2015), <http://copyright.gov/policy/musiclicensingstudy/copyright-and-the-music-marketplace.pdf>.

¹⁶⁰ Jessica Litman has led the charge in documenting the outsized role that industry representatives have played in the drafting and enactment of U.S. copyright law. See JESSICA LITMAN, DIGITAL COPYRIGHT 54–57 (2001) (covering the Copyright Act of 1976); *id.* at 128–45 (covering the DMCA); see also Yafit Lev-Aretz, *Copyright Lawmaking and Public Choice: From Legislative Battles to Private Ordering*, 27 HARV. J.L. & TECH. 203, 205 (2013) (grappling with the implications of public choice theory for copyright reform). To be sure, consumers often benefit because their interests coincide with those of the industries who win exceptions—such as libraries, software developers, and Internet providers. But many forms of routine consumer conduct exist at best within a legal gray area. See Tehranian, *supra* note 10, at 539.

¹⁶¹ See *supra* notes 155, 157–59 and accompanying text.

¹⁶² See *supra* note 156 and accompanying text.

¹⁶³ See *supra* notes 94–99 and accompanying text.

¹⁶⁴ See 17 U.S.C. § 115(a) (2012).

new value even though these are the sorts of uses most likely to advance copyright's goal of promoting cultural progress.¹⁶⁵

V. THE CASE FOR PROPERTY RULES IS STRONGER FOR REAL PROPERTY THAN IP

The foregoing Parts reveal important differences between the law of real property on the one hand and that of patent and copyright on the other. Each of these systems relies primarily on property rules. Real property law, however, is more consistent in relaxing its protections in cases where property rules seem unduly punitive or ripe for abuse by opportunistic plaintiffs.¹⁶⁶ Patent and copyright offer less discretion for courts to consider these factors.¹⁶⁷ This is surprising in light of several characteristics that distinguish tangible property from IP. Real property's more pluralistic normative foundations would seem to justify stronger protections for ownership. By contrast, IP's greater notice failures, inexhaustibility, and tendency towards cumulative production would seem to suggest the need for more remedial discretion. The following sections will detail these differences and respond to counterarguments.

A. *Real Property's Pluralistic Normative Foundations*

There is wide agreement among courts and scholars that patent and copyright are utilitarian in nature.¹⁶⁸ Whatever protections or benefits these regimes provide to IP owners are secondary to the goal of promoting intellectual production.¹⁶⁹ Following this mindset, it should be relatively uncontroversial to state that patent and copyright should choose between property rules and liability rules on the basis of which regime best achieves this goal.

Tangible property law's objectives are less focused.¹⁷⁰ Many scholars argue that tangible property, like IP, operates (or should operate) in a utilitarian manner either to maximize social welfare generally or to encourage those private parties who place the highest value on a piece of property to acquire and make use of it.¹⁷¹ To the extent this is its goal, it too should choose between property rules and liability rules on the basis of their effects on owners' incentives.

¹⁶⁵ See David Fagundes, *Efficient Copyright Infringement*, 98 IOWA L. REV. 1791, 1808–11 (2013) (arguing that productive uses are more socially valuable than consumptive uses).

¹⁶⁶ See *supra* Part II.

¹⁶⁷ See *supra* Parts III–IV.

¹⁶⁸ See sources cited *supra* note 3.

¹⁶⁹ *United States v. Paramount Pictures, Inc.*, 334 U.S. 131, 158 (1948).

¹⁷⁰ See Van Houweling, *supra* note 147, at 1081–82.

¹⁷¹ See, e.g., RICHARD A. POSNER, *ECONOMIC ANALYSIS OF THE LAW* 70 (9th ed. 2014); Ayres & Balkin,

The law of tangible property is nonetheless steeped in other normative commitments that skew the institution of property towards property rules. Some scholars connect the institution of property to the ideal of liberty, for example, positing that the purposes of property ownership are for each owner to define for herself.¹⁷² If this is the case, then property rules seem more appropriate so as not to interfere with the freedom of owners to do as they wish with their property. Patent and copyright, as utilitarian regimes, lack the same strong libertarian underpinning.

Locke's labor theory is another prominent justification for the protection of property.¹⁷³ One may secure one's claim to a piece of property as a matter of natural right under this theory by investing one's labor into creating or acquiring it.¹⁷⁴ While this owner-focused theory may add moral force to the protection of real property, it would seem misplaced to bring these moral concerns to bear on the consequentialist objectives of IP.¹⁷⁵ Even if one does apply Locke's theory to IP, moreover, scholars have questioned whether it would justify expansive protection for intellectual goods.¹⁷⁶ Among other concerns, it may be difficult for some IP rights to satisfy Locke's proviso that one may acquire legitimate rights only when "there [is] enough and as good left in common for others"—this caveat seems especially problematic in circumstances such as independent invention, where enforcement of the patent would mean depriving the unwitting inventor of the fruits of her own labor.¹⁷⁷

Others justify property ownership through the personhood theory, which posits that property law ought to be structured so that people retain control over those items of property necessary for proper self-development.¹⁷⁸ Because

supra note 25, at 706–07; Calabresi & Melamed, *supra* note 1, at 1096–97.

¹⁷² See, e.g., Richard A. Epstein, *Notice and Freedom of Contract in the Law of Servitudes*, 55 S. CAL. L. REV. 1353, 1359 (1982) ("Private property is an institution that fosters individualized, if not eccentric, preferences . . .").

¹⁷³ See Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 296–300 (1988).

¹⁷⁴ *Id.*

¹⁷⁵ This has not, however, stopped courts and scholars from doing so. See, e.g., Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533, 1540 & nn.34–38 (1993) (collecting examples).

¹⁷⁶ E.g., ROBERT NOZICK, *ANARCHY, STATE AND UTOPIA* 181–82 (1974); Gordon, *supra* note 175, at 1581–83.

¹⁷⁷ See NOZICK, *supra* note 176, at 175, 181–82. *But see* Hughes, *supra* note 173, at 324–25 (arguing that IP rights satisfy the proviso because they expand the commons of ideas over time despite their restrictions in the present).

¹⁷⁸ See Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 1014–15 (1982) (arguing that property bound up with one's personhood should enjoy strong protection from outside interference); see also Kaplow & Shavell, *supra* note 25, at 760 (defending the assumption that idiosyncratic value tends to be higher for those who already own an item of property).

property rules would provide greater protection for items with high subjective value, this paradigm provides stronger grounds for property-rule enforcement than IP's conventional utilitarian approach. Protecting creators' and inventors' idiosyncratic interests in IP, moreover, would pose the risk of undermining its utilitarian goals. Empirical research by Christopher Buccafusco and Christopher Sprigman suggests that owners' valuation of their own works is often skewed by a "creativity effect," an exaggerated endowment effect that often leads owners to value their own creations above market value.¹⁷⁹ These overestimations of value might frustrate the development of an efficient market for the use of these IP rights.

The contrast between the underlying justifications for protecting tangible property and intellectual works would suggest that property rules are more appropriate for tangible property than for IP. If tangible property deviates from property rules despite these added justifications, it stands to reason that patent and copyright should make at least as many departures. This is especially true once one considers the unique features of the patent and copyright systems relative to real property presented in the following sections.

B. Notice Failures

Notice failures are endemic to both patent and copyright, raising transaction costs and making property rules less effective in promoting intellectual production in many cases.¹⁸⁰ Real property presents relatively few notice problems. When a landowner intends to build a house—or even a factory—the relevant neighbors are finite and identifiable. The landowner can accordingly double check the relevant boundaries and take measures to avoid creating a nuisance for other parties.

With IP rights, by contrast, it is not immediately apparent whether a proposed use infringes on any existing rights.¹⁸¹ The relative difficulty of identifying boundaries is largely a function of the institutions that real property and IP have established for facilitating search and quieting title. Land records are relatively cost-effective institutions that allow developers to identify the

¹⁷⁹ Christopher Buccafusco & Christopher Jon Sprigman, *The Creativity Effect*, 78 U. CHI. L. REV. 31, 31, 52 (2011).

¹⁸⁰ Peter Menell and Michael Meurer provide an excellent account of these notice failures and the information externalities that these failures impose on users and society at large in their recent article, *Notice Failure and Notice Externalities*. See Menell & Meurer, *supra* note 4.

¹⁸¹ See, e.g., *id.* at 16, 18–21 (contrasting the ease of surveying land with the greater difficulties and uncertainties involved with intangibles).

metes and bounds of neighbors' ownership rights.¹⁸² The Patent Office, meanwhile, cannot claim comparable success given the lack of standardized language for describing inventions;¹⁸³ these difficulties are compounded by the eighteen-month confidentiality period that follows after a patent is filed.¹⁸⁴ The Copyright Office's registry of works is also lacking, among other reasons because owners are not obliged to update their contact information or file notices of transfers in ownership.¹⁸⁵ The shortcomings of this registry are perhaps most apparent with orphan works, those works where the owner appears to have abandoned any interest in the work yet cannot be identified.¹⁸⁶

Real property law also contains notice costs through institutions like zoning boards, which provide a cost-effective preclearance mechanism through which developers can seek approval for their plans without having to resort to *ex post* nuisance claims.¹⁸⁷ IP lacks similar institutions. In patent law, some mechanisms are available for challenging the validity of a patent, but one cannot file for a declaratory judgment establishing whether one's own product infringes without first developing the product sufficiently to invite the threat of an infringement lawsuit.¹⁸⁸ In copyright, volumes have been written on the lack of *ex ante* certainty for fair use determinations in copyright and the desirability of preclearance mechanisms.¹⁸⁹

In addition to these institutions, real property utilizes mechanisms like adverse possession to quiet title in cases where the prior owner is missing or unreasonably delinquent in ejecting a trespasser.¹⁹⁰ IP lacks comparable mechanisms. The Supreme Court went so far as to eliminate the common law defense of laches—which bars claims for damages unless the rights holder files suit in a timely fashion—in its 2014 *Petrella* copyright decision,¹⁹¹ and it extended this holding to patent law in its 2017–2018 term.¹⁹² The problem of

¹⁸² See *id.* at 22.

¹⁸³ See Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PA. L. REV. 1743, 1744, 1781–82 (2009); Peter S. Menell et al., *Patent Claim Construction: A Modern Synthesis and Structured Framework*, 25 BERKELEY TECH. L.J. 711, 716 (2010).

¹⁸⁴ 35 U.S.C. § 122(a)–(b) (2012).

¹⁸⁵ Menell & Meurer, *supra* note 4, at 22.

¹⁸⁶ See REGISTER OF COPYRIGHTS, *supra* note 20, at 21.

¹⁸⁷ Menell & Meurer, *supra* note 4, at 23.

¹⁸⁸ See *id.* at 24 (“Due to ambiguity over what constitutes a sufficient threat to support jurisdiction over a declaratory relief filing . . . patentees and alleged infringers often engage in a complex drama analogous to Kabuki theater.”).

¹⁸⁹ See *supra* Section IV.B.1.

¹⁹⁰ See Menell & Meurer, *supra* note 4, at 43.

¹⁹¹ *Petrella v. Metro-Goldwyn-Mayer, Inc.*, 134 S. Ct. 1962, 1967 (2014).

¹⁹² *SCA Hygiene Prods. Aktiebolag v. First Quality Baby Prods., LLC*, 137 S. Ct. 954, 959, 967 (2017).

orphan works in copyright highlights the difficulties that can compound in the absence of clearance mechanisms.

Recent technological developments and business practices make the problem of notice more complicated still. Manufacturers have embedded software in many consumer goods, meaning that IP owners have potentially imposed idiosyncratic restrictions by way of end-user license agreements. Similar concerns arise with the no-replanting restrictions that patent owners have imposed on genetically modified seeds and other self-replicating inventions.¹⁹³ The emergence of these practices stands in stark contrast to property law's historical reluctance to recognize running restrictions on chattels and the limits it places on such restrictions for real property.¹⁹⁴

Property rules cannot facilitate market transactions for the use of intellectual works if parties lack notice that they are infringing others' rights. Instead, a regime that disregards notice chills socially valuable uses and may impose disproportionate penalties on innocent conduct. This state of affairs also corrodes the perceived legitimacy of the IP regimes in question, fueling further noncompliance by users.¹⁹⁵ Awarding property remedies in the absence of clear notice also creates backwards incentives for rights holders, who may opportunistically submerge notice of their claims to pursue the profits of infringement suits against unwitting infringers.¹⁹⁶

C. Inexhaustibility

Another salient difference between tangible goods and intellectual works is their exhaustibility or lack thereof. Tangible property is rivalrous, meaning that one party's use of the good precludes others' use. If someone takes her neighbor's car, he cannot drive it; if she builds a parking lot on his land, he cannot use it for a bird sanctuary. Intellectual works, however, are non-rivalrous, meaning more than one party can use the work without preventing others from using it. One party's reproduction of a patented machine does not preclude others from making or using their own. Likewise, a playwright's adaptation of a

¹⁹³ See, e.g., *Bowman v. Monsanto Co.*, 133 S. Ct. 1761, 1766–67, 1769 (2013); Daryl Lim, *Self-Replicating Technologies and the Challenge for the Patent and Antitrust Laws*, 32 CARDOZO ARTS & ENT. L.J. 131, 136, 158, 222 (2013); Douglas Fretty, Note, *Both a License and a Sale: How to Reconcile Self-Replicating Technology with Patent Exhaustion*, 5 J. BUS. ENTREPRENEURSHIP & L. 1, 2 (2011).

¹⁹⁴ See Christina Mulligan, *Personal Property Servitudes on the Internet of Things*, 50 GA. L. REV. 1121, 1127, 1129 (2016); Glen O. Robinson, *Personal Property Servitudes*, 71 U. CHI. L. REV. 1449, 1449–50 (2004).

¹⁹⁵ See, e.g., Litman, *supra* note 13; Tyler, *supra* note 13.

¹⁹⁶ Menell & Meurer, *supra* note 4, at 52.

book for the stage does not preclude the author or the reading public from reading the book or creating their own adaptations.

This difference has several implications for the choice between property rules and liability rules. For starters, one justification for property rules in tangible property is that property rules solve the problem of repeat takings.¹⁹⁷ Say that A's winter coat is protected by a liability rule that requires anyone who appropriates it to pay its appraised market value of \$100. Because it is especially cold today, however, A and B both subjectively value the coat at \$200. It would seem rational for B to take the jacket and pay the damages, but by the same logic it would also seem rational for A to take it back, beginning a perpetual cycle of reciprocal takings.¹⁹⁸ As Louis Kaplow and Steven Shavell have observed, "[s]uch reciprocal takings are problematic because they will lead inevitably to destructive contests to retain or to take control of things, and thus to the use of force."¹⁹⁹ To avert this outcome, they conclude that a property rule is strictly preferable.²⁰⁰ This justification is diminished for non-rivalrous goods—like patents and copyrights—because each party can simultaneously make use of the IP in question.²⁰¹ Conflict generally arises only when one party's use of the patent or copyright interferes with the other's ability to commercialize competing products or services.

The other major implication is that tangible property and IP face different efficiency problems. One party's use of a rivalrous resource prevents others from using that resource, hence real property must determine how to efficiently allocate existing resources among potential users.²⁰² One might assume for the sake of argument that a market system—where resources go to the parties that value them most as indicated by the price they are willing to pay—is the most efficient way to allocate these rights.²⁰³ Property rules facilitate these sorts of transactions by strongly discouraging non-market transfers.²⁰⁴

¹⁹⁷ See Kaplow & Shavell, *supra* note 25, at 767–68.

¹⁹⁸ *Id.* at 767. For the purposes of this thought experiment, this author assumes—like Louis Kaplow and Steven Shavell—that the liability rule will assess damages for the coat at its objective market price (\$100). We might be able to avoid the problem if we calibrated the damages for B's taking of the coat to A's subjective valuation (\$200), though there are administrative difficulties in ascertaining such damages.

¹⁹⁹ *Id.*

²⁰⁰ See *id.* at 767–68.

²⁰¹ A collateral concern with self-help does remain, however, as IP owners may take unilateral measures to prevent copying if they perceive existing legal protections as too weak. See *supra* notes 43–47 and accompanying text.

²⁰² WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY* LAW 8 (2003).

²⁰³ *Id.*

²⁰⁴ See *supra* Section I.A.

This analysis does not map neatly onto IP. Because intellectual works are non-rivalrous, the optimal solution for the allocation of existing works among consumers is to allow everyone to use these works so long as they are willing to pay the marginal costs of reproducing the works in question.²⁰⁵ Indeed, to the extent that IP owners set their prices above what consumers are willing to pay, they impose deadweight losses on society.²⁰⁶

IP rights must be justified instead on dynamic efficiency grounds. Patent and copyright accordingly seek to maximize social utility by keeping the rewards for innovation high enough to preserve parties' incentives to create and improve on IP-protected goods, while also keeping prices low enough so that society actually benefits from these innovations.²⁰⁷ The ideal solution from this perspective is not to provide rights that allow IP owners to charge the market price that will generate the maximum private returns, but to price intellectual goods high enough for the owners to recoup their development costs and earn a healthy return on their investments.²⁰⁸ The case for property rules is accordingly weaker in this respect for IP than for tangible property.

D. Cumulative Intellectual Production

Intellectual progress is generally understood as cumulative in nature. Creative works build on the stories and aesthetics of those who have come before; technology advances by building on the successes achieved by prior generations of scientists and engineers. Even the most basic scientific advances depend on researchers having access to the tools of their disciplines, some of which are themselves patented. In today's information economy, moreover, the greatest economic and social value often comes from projects that bundle together rights held by multiple owners. Smartphones practice hundreds of

²⁰⁵ Oren Bracha & Talha Syed, *Beyond the Incentive-Access Paradigm? Product Differentiation & Copyright Revisited*, 92 TEX. L. REV. 1841, 1844 n.9, 1850 (2014).

²⁰⁶ *Id.* at 1850; Jonathan M. Barnett, *Private Protection of Patentable Goods*, 25 CARDOZO L. REV. 1251, 1269 (2004).

²⁰⁷ LANDES & POSNER, *supra* note 202, at 20–21. *But see id.* at 11 (criticizing the incentive-access paradigm as an oversimplification); Bracha & Syed, *supra* note 205, at 1854–56 (redefining the question as one of balancing the benefits of stronger IP rights for the production of works that otherwise would not have been produced against the increased cost of accessing works that would have been produced anyway).

²⁰⁸ See, e.g., Ian Ayres & Paul Klemperer, *Limiting Patentees' Market Power Without Reducing Innovation Incentives: The Perverse Benefits of Uncertainty and Non-Injunctive Remedies*, 97 MICH. L. REV. 985, 990 (1999) ("The benefit of reducing the deadweight loss of supra-competitive pricing is likely to outweigh the costs of a slightly lower incentive to innovate."); Hovenkamp & Cotter, *supra* note 59, at 879 (critiquing courts' failure to tailor remedies to whether those remedies were necessary to spur development of an invention); Sichelman, *supra* note 108, at 524 (arguing that, when IP law provides excessive incentives, the rewards "create windfalls for innovators, which in turn can foster needless consumer deadweight losses").

patents, for example, and the Google Books database now encompasses over 25 million books.

The case for using property rules to promote these sorts of cumulative projects is inconclusive. Proponents of prospect theory would argue that defining clear rights and protecting them with strong property rules will facilitate efficient bargaining to bundle together rights in IP.²⁰⁹ One can appreciate how this system might work for parcels of real property that are modular in nature.²¹⁰ When an owner acquires a parcel of real estate, the owner can for the most part make productive use of it within the bounds of that piece of land without having to worry about anyone else's property rights. Cumulative production is not a great concern for most uses of real property because there are limits to the advantages of combining multiple parcels past a given scale: it is not obvious that ten 100-acre farms will be less productive than two 500-acre farms or one 1000-acre farm.²¹¹ When property is modular, it generally makes sense to use property rules to enforce boundaries.

Property law nonetheless switches to liability rules to address those circumstances where multiple property rights must be coordinated or holdout strategies must be addressed. This trend is evident in contexts like nuisance or the laying of railroad. In light of the growing importance of coordinating rights to create value in the information economy, it stands to reason that the justifications for departing from property rules to allow for resource coordination are at least as strong in IP as in real property, if not stronger.

E. Counterarguments

Tangible property and intellectual works are of course dissimilar along many more dimensions, and some of these differences may support the argument for greater property-rule protection in IP. One of the better arguments for property rules relates to the likelihood that unauthorized use will be detected. In tangible property, it is unlikely that the reasonably attentive property owner will fail to

²⁰⁹ See *supra* note 41 and accompanying text.

²¹⁰ See Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1702–13 (2012) (explaining the benefits of a modular understanding of property rights).

²¹¹ This point must be qualified by the recognition that some agricultural uses require a certain minimum acreage and not all of them are scalable. Henry Smith and Lee Anne Fennell have each highlighted the importance of properly sizing property rights in their discussion of medieval agricultural semi-commons, where individual farmers would use their lands to grow their own crops for part of the year but at other times would combine their parcels for the purpose of creating the right-sized plot for grazing livestock. See Lee Anne Fennell, *Commons, Anticommons, Semicommons*, in RESEARCH HANDBOOK ON THE ECONOMICS OF PROPERTY LAW 35, 47 (Kenneth Ayotte & Henry E. Smith eds., 2010); Henry E. Smith, *Semicommon Property Rights and Scattering in the Open Fields*, 29 J. LEGAL STUD. 131, 134–38 (2000).

notice a major ongoing trespass. In IP, however, infringement may be more difficult to detect. This depends largely on the sort of use the infringer makes. An infringing competitor will likely be caught if it openly markets a product whose primary feature embodies the patented invention. But detection is less likely if the patent covers not the product itself but instead a process of production that takes place behind closed factory doors.

The patentee is also likely to have trouble detecting infringement that comes not from legitimate competitors, but from counterfeiters. Copyright owners face similar difficulties in detecting unauthorized copying of source code and in detecting or tracking piracy, especially now that infringers traffic in digital files rather than hardcopy bootlegs. We might want to enhance the damages for infringement to account for these difficulties.²¹²

The problem of detection is of course not unknown to tangible property, especially as we turn our attention away from real property and towards portable chattels. The willful thief can take pains to cover her tracks so as to avoid detection. For chattels, the law responds to the problem not by imposing higher penalties on all who take property, but instead by imposing heightened penalties on thieves: the standard remedy for conversion of chattels is an award of compensatory damages,²¹³ while punitive damages are generally reserved for cases of fraud or willful misconduct.²¹⁴

Even if one assumes as a general matter that we should enhance IP damages to account for the unlikelihood of detection, it does not follow that the law should adopt a uniform standard of supra-compensatory damages in all copyright or patent cases. The law might instead try to better approximate the likelihood of detection and adjust damages accordingly: courts could award compensatory damages in cases where likelihood of detection was high, as with products that were openly marketed or in cases of infringement by a known licensee, and award supra-compensatory damages only in cases where likelihood of detection was low, as with processes that happened behind the closed doors of a factory or in the shadows of counterfeiting and piracy.²¹⁵ In

²¹² Cf. Calabresi & Melamed, *supra* note 1, at 1126 n.70 (“We would . . . presumably try to adjust the amount of damages charged to the thief in order to reflect the fact that only a percentage of thieves are caught; that is, we would fix a price-penalty which reflected the value of the good and the risk of capture.”).

²¹³ See RESTATEMENT (SECOND) OF TORTS § 927 (AM. LAW INST. 1979).

²¹⁴ See, e.g., *Krusi v. Bear, Stearns & Co.*, 144 Cal. App. 3d 664, 678 (Cal. Ct. App. 1983) (“There is no question that punitive damages may be recovered in an action for conversion. Punitive damages are recoverable, however, only upon a showing of malice, fraud, or oppression.”) (citations omitted).

²¹⁵ Cf. Omri Ben-Shahar, *Damages for Unlicensed Use*, 78 U. CHI. L. REV. 7, 19 (2011) (“If violations committed by licensees are detectable, then they require no multiplier.”).

other words, if our concern is the likelihood of detection then we should actually calibrate IP damages to that concern.

Another issue worth confronting is the difficulty of pricing the damages caused by patent or copyright infringement. Property rules avoid this problem by prohibiting unauthorized use and forcing the infringer to bargain for the rights. Liability rules cannot escape these difficult calculations because they require setting compensatory damages. The difficulty of setting a price under a liability rule is not, however, unique to IP. Courts have long treated parcels of real property as unique.²¹⁶ Indeed, first year contracts students learn that an agreement for the sale of real property is one of the few types of contract the law will enforce through specific performance rather than mere expectation damages.²¹⁷ The problem also need not be overstated in the domain of IP. Some cases pose difficult valuation questions, but not all do. Because multiple parties can use the same IP, for example, the plaintiff may already have disclosed its valuation of the rights through a license rate offered to another party. In cases where the defendant can identify the costs of their next-best option, the price of that alternative sets a ceiling on royalties. And in cases where the infringement directly costs the plaintiff sales, it is also straightforward to calculate damages so long as the lost profits can be reasonably ascertained.

* * *

Patent and copyright mandate the use of property rules in many circumstances where the law of tangible property would allow courts to consider liability rules. This arrangement seems backwards given the many distinct features that weaken the case for property rules in IP relative to tangible property. The next Part builds on these observations to consider how IP entitlements might be adjusted to better advance intellectual production.

VI. BEYOND PROPERTY RHETORIC

Real property law provides a helpful roadmap for how IP might navigate the choice between property and liability rules. The discussion that follows begins by exploring how real property law has implemented a pragmatic approach to remedies, often deploying liability rules to advance economic goals. Just as real property seems to have adapted to the needs of the industrial economy, IP ought to adapt to the needs of the information economy. This Part then considers

²¹⁶ *E.g.*, *Brown v. E. Van Winkle Gin & Mach. Works*, 39 So. 243, 244–45 (Ala. 1904).

²¹⁷ *E.g.*, RANDY E. BARNETT & NATHAN B. OMAN, *CONTRACTS: CASES AND DOCTRINE* 157 (6th ed. 2017).

specific possibilities for reform and concludes by addressing the political and ideological hurdles that stand in the way.

A. *Balancing Rights to Promote Progress*

Property law is not built around essentialist notions of what ownership is or ought to be. And its remedies do not reflect abstract comparisons of the costs and benefits of property rules as measured against liability rules. Courts and legislators have instead taken a practical approach to balancing protection of individual ownership against broader societal interests, especially where the pursuit of economic or social progress might be stalled by enforcement of property rules.

We might accept for the sake of argument—despite good evidence to the contrary—that property law at the height of the agrarian economy matched the Blackstonian caricature of property as “that sole and despotic dominion which one man claims . . . in total exclusion of the right of any other individual in the universe.”²¹⁸ The strong property rules suggested by Blackstone’s formulation might have occasionally stifled socially beneficial enterprises, like those cases where nuisance law provided an effectively automatic injunction against the odious smells emitted by productive activities such as brewing beer or tanning leather.²¹⁹ But the majority of agricultural production could have proceeded under strong property rules because most uses of land were modular—producing few legally cognizable externalities and few coordination problems—and because the property regime averted notice problems by establishing systems for defining the metes and bounds of ownership.

Whatever the efficacy of this regime for an agrarian economy, it would have been extraordinarily cumbersome if transposed onto the industrial economy. This is so because industrial production often requires interference with or outright appropriation of adjoining properties. Some of these productive uses impose only partial impairments on ownership, as when industrial production emits odors, noise, or particulate matter that interferes with neighbors’ rights to quiet enjoyment.²²⁰ Other intrusions are much greater, as when a mill owner floods neighboring farmland or when a railroad lays track through existing

²¹⁸ 1 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND *2 (1893). For evidence to the contrary, see, for example, Carol M. Rose, *Canons of Property Talk, or, Blackstone’s Anxiety*, 108 YALE L.J. 601, 631 (1998) (“The very notion of property as exclusive dominion is at most a cartoon or trope, as Blackstone himself must have known . . .”).

²¹⁹ See sources cited *supra* note 90.

²²⁰ See *supra* Section II.D (examining the law of nuisance).

pastureland.²²¹ It is difficult to imagine the industrial economy taking root if each nuisance had given rise to automatic veto power, or if each farmer had the right to halt the railroad. Courts and legislators cleared the way by adopting liability rules to resolve property disputes between industrialists and their neighbors.

The lesson here is not that we should model IP after property, Blackstonian or otherwise. This author argues instead for a similarly practical approach to balancing competing interests. Just as lawmakers and courts structured property remedies to facilitate resource coordination in the industrial economy, today's lawmakers and courts should tailor IP to the specific challenges of intellectual production in the information economy.²²² As noted earlier, such introspection is even more appropriate for IP than tangible property: while many scholars would concede that tangible property is pluralistic in its values, IP scholars generally agree that patent and copyright are best understood in the U.S. context as instrumentalist regimes for vindicating economic and social progress.²²³

It is worth considering the possibility that protecting copyrightable or patentable works with strong property rules is the best way to fuel such progress. Perhaps, for example, the administrative costs of a more nuanced remedial regime would be so great as to be fatal to the case for liability rules. If that proved to be the case, then it would be prudent to stay the course with the present remedial scheme. But this author joins other scholars in expressing doubt that current law provides anything close to the optimal system.²²⁴ In particular, this author submits that expanded use of liability rules would be salutary for handling

²²¹ See *supra* Section II.E (examining state-authorized takings).

²²² Julie Cohen has advanced a similar argument. While her historical comparison focuses on the emergence of legal regimes such as corporate law that are collateral to property, this Article focuses on the changes to property itself. See *supra* note 28 and accompanying text.

²²³ See *supra* Section V.A. While instrumentalist in orientation, this approach need not and ought not pursue a narrow vision of economic efficiency. Instead, this author would argue we should optimize IP law to pursue a rich conception of economic and cultural production. See Fisher, *supra* note 3 (articulating a “social planning theory” of IP, “similar to utilitarianism in its teleological orientation, but dissimilar in its willingness to deploy visions of a desirable society richer than the conceptions of ‘social welfare’ deployed by utilitarians”); see also Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 386 (1996) (exemplifying this approach in his argument that copyright ought to be structured “to ensure the diversity and autonomy of the voices that make up our social, political, and aesthetic discourse”).

²²⁴ See WILLIAM PATRY, *HOW TO FIX COPYRIGHT* 50 (2011) (“Our current laws are based on rhetoric and faith, not on evidence.”); Mark A. Lemley, *Faith-Based Intellectual Property*, 62 UCLA L. REV. 1328, 1345 (2015) (“The evidentiary support for the current IP regime is dubious enough that it should prompt us to have a serious conversation as a society about when IP is serving the goals of encouraging the creation and dissemination of new content and when it isn’t.”); see also Lisa Larrimore Ouellette, *Patent Experimentalism*, 101 VA. L. REV. 65, 68–69 (2015) (detailing several experimental and experimentalist proposals to generate better information on the function of the patent system).

unwitting infringement and solving several resource coordination problems. The next section examines possibilities for doing so.

B. Remedial Choices as Policy Levers

Problems in patent and copyright are amenable to a wide range of potential interventions. We could confront notice failures, for example, by implementing clearer boundaries and providing more effective preclearance mechanisms.²²⁵ Or we could move beyond the IP paradigm and turn to prizes and direct state subsidies in fields where patent thickets or trolling behavior make private investment too costly.²²⁶

This section pursues the changes that could be made by addressing IP remedies directly. These changes—switching to liability rules in cases of non-negligent infringement and deploying compulsory licenses in the face of specific kinds of market failures—hold the potential to realign patent and copyright owners' and users' private interests with IP's broader social and economic goals.

1. Defusing Notice Failures via Reasonable Search Defense

One way to improve both users' and owners' incentives would be to replace property rules with liability rules in cases where the unwitting infringer made reasonable efforts to search for IP rights and found no apparent conflict. Under the prevailing property rules in IP, would-be users are in a difficult position. The firm that searches diligently for patents covering its new invention—but finds none—is just as liable for injunctive relief and damages as the firm that conducts no search at all.²²⁷ The publisher who searches diligently but cannot find the owner of an orphan work before reprinting or repurposing it is likewise fully liable for copyright infringement if the owner later emerges and files suit.²²⁸ The resulting system sets incentives that are at odds with the knowledge propagation goals of IP law: engineering firms often ignore patents since reading them does

²²⁵ See, e.g., Carroll, *supra* note 154, at 1090–91 (proposing the creation of a fair use board to provide some *ex ante* assurance as to the application of the fair use defense); Menell & Meurer, *supra* note 4, at 2–6 (identifying strategies to reduce IP's information externalities); Christopher Sprigman, *Reform(alizing) Copyright*, 57 STAN. L. REV. 485, 487–89 (2004) (identifying how we might use copyright's registration, notice, and renewal requirements as policy levers).

²²⁶ For an insightful recent treatment of the literature on prizes—and tax incentives—as patent alternatives, see Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents-Prizes Debate*, 92 TEX. L. REV. 303 (2013).

²²⁷ See *supra* notes 5–8 and accompanying text.

²²⁸ REGISTER OF COPYRIGHTS, *supra* note 20, at 15.

no good,²²⁹ and risk-averse parties avoid using copyrighted works where ownership rights are unclear.²³⁰

Owners face their own set of misaligned incentives. Under the current system, they can invoke property rules for infringement so long as they satisfy the bare formalities for registering their IP rights. Indeed, owners may be able to reap greater remuneration by way of an infringement lawsuit—where supra-compensatory damages offer the possibility of windfall awards—than they could have earned by selling their rights on the market. The opportunistic patent or copyright holder therefore has an incentive to submerge its claim in hopes of suing an unwitting infringer rather than to publicize it. This is the modus operandi of patent and copyright trolls.²³¹

IP law could correct both sets of incentives by recognizing the unwitting infringer's reasonable search efforts as a shield against property rule enforcement. Users would be encouraged to make good-faith searches to protect themselves against injunctions or supra-compensatory damages. Owners would likewise be encouraged to adequately publicize their claims to ensure that their rights would become apparent in the course of a reasonable search, meaning they could no longer claim a strategic advantage by exploiting notice failures.

It is worth noting how this defense would differ from a negligence regime. Imposing a negligence standard would absolve the defendant of all liability so long as it took reasonable precautions to avoid infringement.²³² While that approach has merit in many scenarios, the proposal presented here is even more modest and would maintain patent and copyright as strict liability systems while limiting relief to the compensatory damages of a liability rule. As such, it would follow the pattern of real property's treatment of unintentional encroachment and share real property's aim of making the owner whole in the event of ongoing infringement without requiring the defendant to sacrifice the time, money, or consumer goodwill invested in the infringing use.²³³

²²⁹ See *supra* note 111 and accompanying text.

²³⁰ See generally Gibson, *supra* note 13, at 890–91 (describing the practices of risk-averse parties in IP licensing and distribution).

²³¹ See *supra* notes 14–15 and accompanying text.

²³² See Bracha & Goold, *supra* note 139, at 947.

²³³ See *supra* Section II.B.

2. *Defusing Holdups via Limited Compulsory Licensing*

Property rules also present difficulties in cases where a user requires a specific IP right for which there are no ready substitutes.²³⁴ An opportunistic IP owner may engage in classic holdup behavior by demanding licensing fees in excess of the patent or copyright's actual value to claim an outsized share of the surplus created by the use. Or an owner that wished to suppress a particular work or technology might refuse to license on any terms.²³⁵ These behaviors by owners are especially concerning in cases where a proposed use would yield significant positive externalities, as is often the case in IP.²³⁶ While uses that generate these spillover benefits for the public are among those IP law should most seek to encourage, the prospective user's inability to internalize the project's value will unfortunately also reduce her ability to meet the owner's demands.

To address this problem, this author proposes denying property-rule protection and instead awarding compensatory damages in patent and copyright cases where (1) the owner refuses to license the rights at a reasonable rate, (2) there is no substitute for the invention or work in question, and (3) the gains to the public are significant relative to any private loss to the owner that could not be compensated for through a damages award of a reasonable royalty.²³⁷ This approach would vest the courts with discretion similar to that which they exercise in real property nuisance cases—they would balance competing interests and determine whether the value of the defendant's use justified the

²³⁴ Cf. Epstein, *supra* note 23.

²³⁵ While this Article deals mainly with the question of when to depart from property rules in favor of liability rules, this author explores a stronger response to copyright owners' opportunistic refusals to deal in his working paper, *Fair Use as Penalty Default*. That paper argues that courts should apply the fair use doctrine to deny compensation to copyright owners who strategically refuse to enter new markets, much like courts have historically denied liability when copyright holders refused to license their works for the markets opened by new technologies. See, e.g., *Teleprompter Corp. v. Columbia Broad.*, 415 U.S. 394, 412, 414 (1974) (cable retransmission); *Fortnightly Corp. v. United Artist Television*, 392 U.S. 390, 402 (1968); *White-Smith Music Publ'g Co. v. Apollo Co.*, 209 U.S. 1, 18 (1908) (player piano roll); *Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys., Inc.*, 180 F.3d 1072, 1081 (9th Cir. 1999) (portable MP3 player). While commentators have faulted the courts' reasoning in these cases for being driven by the courts' rough sense of the equities rather than any consistent feature of copyright doctrine, see Jane C. Ginsburg, *Copyright and Control over New Technologies of Dissemination*, 101 COLUM. L. REV. 1613, 1617 (2001), the proposed approach to fair use would provide a coherent basis for these decisions going forward.

²³⁶ See Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 268–69 (2007); see also Lemley, *supra* note 3, at 1046 (“The assumption that intellectual property owners should be entitled to capture the full social surplus of their invention runs counter to our economic intuitions in every other segment of the economy.”).

²³⁷ Setting an appropriate royalty may of course be more challenging in a case where there are no adequate substitutes for comparison purposes.

incursion on the plaintiff's rights. The primary difficulty with this approach is the burden of identifying those cases where the public gains are great enough to justify the departure from a property rule.

The clearest scenarios arise in the case of patented inventions that are singularly effective in protecting human health or averting environmental degradation. They may also arise when copyright covers irreplaceable moments in our shared history. Consider the legal dispute over the text and recordings of Dr. Martin Luther King Jr.'s "I Have a Dream" speech.²³⁸ The late Dr. King's estate holds copyright in the speech and sued CBS for using the speech in a documentary without paying royalties.²³⁹ While Dr. King's estate was willing to license its rights, this dispute highlights the problems that could arise if an owner with veto power refused to license the use of such a powerful historical moment.

To be sure, IP owners sometimes have quite legitimate reasons for refusing to deal and they are within their rights to set royalty rates that secure a profitable return for the duration of the IP term. But IP owners' negotiating power is not absolute: even under current law it is limited both by antitrust law²⁴⁰ and by principles internal to IP, especially in circumstances where the owner attempts to leverage IP rights to control other products or markets.²⁴¹ The proposal advanced here would supplement these restraints with a limited compulsory licensing regime.

3. *Non-Market Rate Compulsory Licenses*

Congress could also expand the use of compulsory licenses to pursue public health, innovation, and other policy goals in areas where the market fails to deliver on these goals.²⁴² These licensing schemes could adopt the conventional approach of approximating a market-rate royalty. Alternatively, IP also offers a unique opportunity to pursue policy objectives through compulsory licenses set below the market rate. It is not difficult to see why this would not work for most tangible goods: firms would respond to price controls by reducing or halting

²³⁸ Estate of Martin Luther King, Jr. v. CBS, Inc., 194 F.3d 1211, 1212–13 (11th Cir. 1999).

²³⁹ *Id.* at 1213.

²⁴⁰ See generally U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY (2017), https://www.ftc.gov/system/files/documents/public_statements/1049793/ip_guidelines_2017.pdf (discussing these limits).

²⁴¹ Kimble v. Marvel Entm't, 135 S. Ct. 2401, 2413–14 (2015) (grounding the patent misuse defense in the concerns of patent policy); Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970, 978 (4th Cir. 1990) ("The question [of copyright misuse] is . . . whether the copyright is being used in a manner violative of the public policy embodied in the grant of a copyright.").

²⁴² For examples of compulsory licenses in copyright, see *supra* Section IV.B.2. Congress also possesses "march-in" rights in patent. See 28 U.S.C. § 1498(a) (2012).

their production of the goods in question. Patent and copyright do not face the same limitation. So long as there is sufficient market remuneration to provide a reasonable rate of return on the IP holders' development costs, the inventions or works will still be produced. This strategy works especially well where the IP holder can obtain this remuneration via the primary market, and where the below-market compulsory license operates in a distinct secondary market.

Recent proposals to lower the price of lifesaving pharmaceuticals by expanding the federal government's existing patent march-in rights are grounded in this sort of approach.²⁴³ Making these medicines more available would generate immense gains for the social welfare and distributive justice, but such uses would not significantly diminish innovation incentives so long as the owners received a reasonable rate of return on their research and development expenses.²⁴⁴ Indeed, insofar as many of these proposals operate via price discrimination in favor of people who otherwise could not have afforded the drugs, their impact on normal profits would be mitigated so long as the patent owner could prevent arbitrage.

Compulsory licenses of this sort are not new. Jacob Victor has recently argued, for example, that Congress set the "mechanical license" at a below-market rate to bolster the nascent recording industry and maximize public access to creative works.²⁴⁵ The Copyright Act of 1909 permitted anyone to make and sell their own recording of a copyrighted musical composition for the low price of two cents per copy.²⁴⁶ While this rate (now set at 9.1 cents²⁴⁷) is below what copyright holders would charge for this privilege in an open market,²⁴⁸ it does not seem to have damaged musicians' incentives to create new compositions in the intervening century.

Policy-driven compulsory licenses of this sort could also be used to facilitate follow-on innovation. The state could, for example, establish administrative

²⁴³ See, e.g., Hannah Brennan et al., *A Prescription for Excessive Drug Pricing: Leveraging Government Patent Use for Health*, 18 YALE J.L. & TECH. 275, 279–80 (2016). Note, however, that the authors of the aforementioned proposal characterize it not as an exercise in takings via eminent domain but instead as an extension of the federal government's sovereign immunity to patent infringement suits. *Id.* at 308–09.

²⁴⁴ See *id.* at 282.

²⁴⁵ Jacob Victor, *Reconsidering Compulsory Copyright Licenses* 18–23 (Feb. 21, 2019) (unpublished manuscript) (on file with author).

²⁴⁶ An Act to Amend and Consolidate the Acts Respecting Copyright, Pub. L. No. 60-349, 35 Stat. 1075, 1076 (1909).

²⁴⁷ See U.S. COPYRIGHT OFFICE, MECHANICAL LICENSE ROYALTY RATES (2018), <https://copyright.gov/licensing/m200a.pdf>.

²⁴⁸ See Robert P. Merges, Comment, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2671 (1994).

schemes for setting reasonable and non-discriminatory rates—either at or below market rates—in industries where patent thickets impede follow-on innovation or market entry.²⁴⁹ To be sure, IP experts contest the seriousness and sometimes even the existence of patent thickets across different industries.²⁵⁰ Since compulsory licenses generally take the form of industry-specific interventions, however, the overall risks of any given licensing scheme could be limited to the industry in question. The possibility of testing compulsory licenses in select industries—or testing different schemes for different industries—might in fact set the stage for a productive natural experiment on the impact of statutory licenses for follow-on innovation.²⁵¹

C. *Barriers to Reform*

The difficulties that the property analogy presents for IP reform do not stem from the features of property law, as it exists in doctrine or in practice. Rather, the difficulties stem from the ideological rhetoric surrounding the general notion of property. As the foregoing discussion has shown, property law makes several strategic departures from property-rule protection. Many of these departures seem to have emerged in a political economy where industrial-era entrepreneurs were well-positioned to demand access to others' tangible property to pursue industrial production.²⁵² Industrialists had wealth, political clout, and a narrative of economic progress to bolster their claims. The law often accommodated their wishes through the deployment of liability rules.

The political economy of today is different.²⁵³ Firms in the late twentieth century increasingly found that their IP rights were among their most valuable

²⁴⁹ This approach could build on proposals for setting reasonable royalties in the context of standard-essential patents, which private parties agree to license on fair, reasonable, and non-discriminatory (FRAND) terms. See generally Lee & Melamed, *supra* note 113, at 430–32 (endorsing judicial decisions that show heightened concern for patentee overcompensation); Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135 (2013) (proposing baseball-style binding arbitration when parties cannot agree to terms); Norman V. Siebrasse & Thomas F. Cotter, *The Value of the Standard*, 101 MINN. L. REV. 1159, 1197–1207 (2017) (proposing a framework for calculating the incremental value added by the patent).

²⁵⁰ Compare Jonathan M. Barnett, *The Anti-Commons Revisited*, 29 HARV. J.L. & TECH. 127, 135 (2015) (expressing skepticism about the existence of patent thickets because “IP rights holders have incentives and capacities to negotiate cooperative arrangements that generate surplus value that would otherwise remain suppressed”), with Shapiro, *supra* note 16, at 119 (identifying patent thickets in semiconductors, biotechnology, computer software, and Internet technologies).

²⁵¹ Cf. Ouellette, *supra* note 224 (proposing experimental approaches in patent law).

²⁵² See generally MORTON J. HORWITZ, *THE TRANSFORMATION OF AMERICAN LAW, 1780–1860*, at 31–108 (1977) (recounting the history of property law and analyzing how property law has reacted to economic changes and development).

²⁵³ See sources cited *supra* note 160; see also Amy Kapczynski, *The Access to Knowledge Mobilization*

sources of wealth.²⁵⁴ So they lobbied not for access to others' rights, like the industrialists of the prior century, but instead for protectionist legislation to better secure their own patents and copyrights.²⁵⁵ Industry lobbyists gained considerable rhetorical force by grouping together the previously disparate fields of copyright, patent, and trademark as intellectual "property," tapping into contemporary intuitions about how property ought to be protected.²⁵⁶ Increased protection can of course be counterproductive for intellectual production where it imposes barriers to building on others' work. This concern did not deter lobbying efforts, however, because the costs of these barriers fell unevenly. Large IP owners could rationally demand an increasingly restrictive regime because they continue to reap the benefits of their existing portfolios and can leverage their rights for cross-licensing deals with other established players when they need to use others' rights.²⁵⁷ The losers were the smaller players who lacked comparable resources.²⁵⁸

Sweeping reforms of IP are therefore unlikely to pass overnight in Congress. And while courts provide an avenue for reform in their disposition of individual cases—particularly in matters like fair use or the calculation of reasonable royalties, where they retain discretion—courts too have been reluctant to exercise such discretion to reign in the excesses of the statutory regime. The Supreme Court, for example, recently tied the judiciary's hands by categorically eliminating the laches defense in both copyright and patent, removing a tool that courts could have used to police against IP owners' opportunistic delay in asserting their rights.²⁵⁹ Reforming the system therefore requires reframing the debate to go beyond mere property rhetoric and incorporate a more sophisticated account of property as a body of law that vindicates social goals beyond those of individual ownership.

and the New Politics of Intellectual Property, 117 YALE L.J. 804, 846–48 (2008).

²⁵⁴ See, e.g., WILLIAM M. LANDES & RICHARD A. POSNER, *THE POLITICAL ECONOMY OF INTELLECTUAL PROPERTY* LAW 25 (2004) ("[T]here is no doubt that recent decades have seen . . . the economies of the advanced nations shift[] from 'industrial' economies to 'information' economies."); Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900–2000*, 88 CALIF. L. REV. 2187, 2235 (2000).

²⁵⁵ See Merges, *supra* note 254, at 2236–39.

²⁵⁶ See Kapeczynski, *supra* note 253, at 848 ("Part of how they united and gained the support of policymakers was by forging a common identity as intellectual property industries, and by framing the use of their products without permission as 'theft.'").

²⁵⁷ See *supra* note 17 and accompanying text.

²⁵⁸ See *supra* note 18 and accompanying text.

²⁵⁹ *Petrella v. Metro-Goldwyn-Mayer, Inc.*, 134 S. Ct. 1962, 1974 (2014); see *id.* at 1981 (Breyer, J., dissenting) ("The Court holds that insofar as a copyright claim seeks damages, a court cannot ever apply laches, irrespective of the length of the plaintiff's delay, the amount of harm that it caused, or the inequity of permitting the action to go forward."); see also *SCA Hygiene Prods. v. First Quality Baby Prods., LLC*, 137 S. Ct. 954, 959 (2017).

CONCLUSION

Property doctrine moves cyclically. While developments since the time of Blackstone have arguably trended towards less formalism—and perhaps even less protection—each generation of legal thinkers has struggled to balance the benefits of clear legal entitlements against the need for equitable exceptions to deal with opportunism, sharp dealing, and failures of cooperation.²⁶⁰ We have long been on the upswing of increasing formalism and protection in IP. Worse, many scholars have voiced their concerns that the pendulum has been arrested as a result of legislative capture.²⁶¹

This Article looks to recalibrate remedies in patent and copyright to counter these trends. Tangible property law shows how we can leverage the choice between property rules and liability rules to better calibrate IP to promote the production and distribution of intellectual goods. And the benefits would go beyond correcting the excesses of existing doctrine. Interventions like these also pave the way for more holistic reform by demonstrating the value of a more pragmatic approach to ownership and innovation policy.

²⁶⁰ See Carol M. Rose, *Crystals and Mud in Property Law*, 40 STAN. L. REV. 577, 578–79 (1988) (“[O]ver time, the straightforward common law crystalline rules have been muddled repeatedly by exceptions and equitable second-guessing, to the point that the various claimants under real estate contracts, mortgages, or recorded deeds don’t know quite what their rights and obligations really are.”); see also Smith, *supra* note 106, at 1–2 (probing the relation between formal law and the exceptions of equity).

²⁶¹ See, e.g., Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VA. L. REV. 813, 898 (2001) (“Congress’s increasing willingness to enact into law compromises crafted between those who create, those who publish, and those who provide the means to distribute works of authorship further diminishes the political voice of copyright’s consumers.”); see also Merges, *supra* note 254, at 2239 (“[I]n an age of increasing ‘statutorification’ in intellectual property law, the system needs a counterweight where the legislative process is skewed.”).