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Patents, Property, and Prospectivity

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Abstract. When judges change the legal rules governing patents, those changes are always retroactive. That is, they apply equally to patents that have already been granted and patents that do not yet exist. There are benefits to making a change in the law retroactive, particularly if the new legal rule is an improvement over what preceded it. But there are costs as well. Retroactive changes in the law upset reliance interests. This can be particularly harmful when those reliance interests involve rights or entitlements that form the basis for substantial financial investment, as is often the case with patents. What is more, judges are aware that their decisions can do violence to existing reliance interests. This makes judges wary of making changes to patent law in the first place, which can lead to the law becoming stultified. Reducing the rate of legal change is not an adequate solution. Neither is takings law, which is commonly applied to solve similar problems that arise in the context of real property but is a poor fit for intellectual property. Rather, to ameliorate the reliance concerns generated by legal change, federal judges should be afforded the latitude to make their rulings purely prospective. And patent judges should exercise this discretion in the many cases where forward-looking change is called for but backward-looking change would do more harm than good.

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Table of Contents

Introduction.....	965
I. Patents and Reliance Interests.....	969
II. Reliance Interests and the Preservation of the Status Quo.....	976
III. Takings and Patent Retroactivity.....	983
A. The Normative Case for and Against Applying Takings Law to Patents.....	984
B. Are Patents Property for Purposes of the Takings Clause?.....	989
C. Judicial Takings and Patent Law.....	993
IV. Purely Prospective Changes to Patent Law.....	995
A. The Costs and Benefits of Nonretroactive Legal Change.....	997
B. Nonretroactive Changes in Patent Law.....	1000
C. The Mechanics of Retroactive and Prospective Lawmaking.....	1008
1. From habeas to patent law.....	1008
2. Forum-based prospectivity.....	1013
D. The Law of Nonretroactivity.....	1016
Conclusion.....	1022

Introduction

“[S]uppose that the patent has been in existence without anybody reexamining it for 10 years and, moreover, the company’s invested \$40 billion in developing it. And then suddenly somebody comes in and says: Oh, oh, . . . we want it reexamined, not in court but by the Patent Office. Now, that seems perhaps that it would be a problem . . . ?”

—Justice Stephen Breyer¹

“If I were deciding this case on a blank canvas, I might conclude that an isolated DNA sequence that includes most or all of a gene is not patentable subject matter. . . . But we do not decide this case on a blank canvas. Congress has, for centuries, authorized an expansive scope of patentable subject matter. . . . I believe we must be particularly wary of expanding the judicial exception to patentable subject matter where both settled expectations and extensive property rights are involved.”

—Judge Kimberly Ann Moore²

Consider the following scenario. The judges of the Federal Circuit are faced with the question whether a particular type of biologic invention constitutes patentable subject matter under § 101 of the Patent Act.³ The judges have become convinced, for reasons of law or policy, that the invention should not be patentable under § 101.⁴ But holding as much would mean overturning decades-old circuit precedent, under which the U.S. Patent and Trademark Office (PTO) has granted (and the courts have upheld) tens of thousands of existing patents. Dozens of major businesses have been founded on the basis of those patents, and billions of dollars of investment capital have flowed to the businesses because of them. Changing the law would risk upending the businesses and, worse, invalidating the patents might deter future investments in research and development (R&D). Future innovators and investors might be much more reluctant to pursue patent-based research if they have reason to fear that the Federal Circuit will pull the rug out from under them.

This problem is fundamental to any area of law in which investment decisions are made on the basis of expectations regarding the stability and reliability of legal rights. But it is of particular significance and salience within

1. Transcript of Oral Argument at 29-30, *Oil States Energy Servs., LLC v. Greene’s Energy Grp., LLC*, 138 S. Ct. 1365 (2018) (No. 16-712), 2017 WL 8231974.

2. *Ass’n for Molecular Pathology v. U.S. Patent & Trademark Office*, 689 F.3d 1303, 1343 (Fed. Cir. 2012) (Moore, J., concurring in part), *aff’d in part, rev’d in part sub nom. Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013).

3. *See* 35 U.S.C. § 101 (2017).

4. This example is, of course, the scenario addressed by Judge Moore. *See supra* text accompanying note 2.

the realm of patent law.⁵ Patents exist for the purpose of promoting innovation,⁶ and they do so by granting legal rights to innovators that allow them to capture significant financial returns by making and selling their inventions.⁷ If patent rights become unreliable or unstable, the purpose and function of the patent system will be undermined. Put another way, the bargain between the government and an inventor is that the latter publicizes her invention in exchange for a legal monopoly of limited time. If courts later revoke the inventor's benefit from that bargain, how likely will she be to enter into a similar exchange the next time, particularly where trade secret protection is a practical alternative?⁸

Moreover, at least in recent years, patent law has undergone a more rapid series of legal changes than nearly any other area of law, and certainly any other area of property law. Between 2010 and 2014, the U.S. Supreme Court decided four major cases that reconfigured the boundaries defining which types of inventions may be patented and which may not.⁹ And this merely scratches the surface; there are many other Supreme Court decisions and hundreds of appellate cases that have reshaped patent law in various ways.¹⁰ An area of law that depends upon legal stability has become notably unstable.

This is the issue described by Justice Breyer and Judge Moore in this Article's epigraph. Justice Breyer's comment, made during oral argument in

5. See Daniel R. Cahoy, *Changing the Rules in the Middle of the Game: How the Prospective Application of Judicial Decisions Related to Intellectual Property Can Promote Economic Efficiency*, 41 AM. BUS. L.J. 1, 21 (2003) ("Although property rights in general merit special consideration when it comes to retroactivity in judicial decision making, the case that can be made for intellectual property is even more convincing.").

6. See U.S. CONST. art. I, § 8, cl. 8 (granting Congress the power "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries").

7. See, e.g., Benjamin N. Roin, *The Case for Tailoring Patent Awards Based on Time-to-Market*, 61 UCLA L. REV. 672, 749 (2014) ("[P]atents promote innovation by allowing patentees to appropriate a greater portion of the social returns from their inventions . . .").

8. This is far from speculative. In fact, there is evidence that the burden of public disclosure discouraged patenting even before recent upheavals in the law of patentability. See John R. Allison & Emerson H. Tiller, *The Business Method Patent Myth*, 18 BERKELEY TECH. L.J. 987, 1005 n.51 (2003) ("[M]ost research and development executives view trade secrets and other means as superior to patents in appropriating returns on R&D investment.").

9. See *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354-60 (2014) (holding that many types of business methods and software inventions may not be patented); *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 590-95 (2013) (holding that isolated DNA is unpatentable but complementary DNA (cDNA) is patentable); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 77-80 (2012) (holding that certain types of diagnostic medical tests are unpatentable); *Bilski v. Kappos*, 561 U.S. 593, 609-12 (2010) (holding that certain business methods are unpatentable).

10. See *infra* notes 38-39 and accompanying text.

Oil States Energy Services, LLC v. Greene's Energy Group, LLC, addresses the perceived problem created when patents are invalidated via administrative proceedings before the PTO.¹¹ But the problem is more general: Whenever the PTO or a court invalidates a patent—or a major change in the law invalidates thousands of patents—it reduces firms' incentives to invest in R&D. How should courts respond in the face of this hazard?¹² One option is suggested by Judge Moore's concurring opinion in *Ass'n for Molecular Pathology v. United States Patent & Trademark Office*. Courts could adhere more rigidly to stare decisis and simply alter the law less often.¹³ Yet this approach is often a poor fit for patent law, where the law must be frequently updated if it is to keep pace with changes in technology and markets.¹⁴ It is also ill-suited to a system in which only one court of appeals handles patent cases, thus eliminating the possibility of circuit splits. Without a circuit split to signal the Supreme Court, long periods of time may pass before the Court addresses important questions of patent law.¹⁵

Another possibility would be for courts to treat changes in patent law that weaken existing patents as judicial takings that must be compensated. In *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*, a plurality of the Supreme Court held that property can be taken for purposes of the Takings Clause by judicial decisions that overturn well-established property rules.¹⁶ Applying takings law to patent cases would provide a type of

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11. See *supra* text accompanying note 1; see also *Oil States Energy Servs., LLC v. Greene's Energy Grp., LLC*, 138 S. Ct. 1365 (2018).
 12. Our focus in this Article is on the courts—the primary expositors of patent law. But the point is general to any institution that has a role in shaping patent law. As PTO Director Andrei Iancu said at his swearing-in ceremony: “[W]e must endeavor to provide reliable, predictable, and high-quality [intellectual property] rights that give owners and the public alike confidence in those rights.” Andrei Iancu, Under Sec’y of Commerce for Intellectual Prop. & Director, U.S. Patent & Trademark Office, Remarks at the Ceremonial Swearing-In (Feb. 23, 2018), <https://perma.cc/Q7R5-U6CM>.
 13. See 689 F.3d 1303, 1343 (Fed. Cir. 2012) (Moore, J., concurring in part), *aff’d in part, rev’d in part sub nom. Myriad*, 569 U.S. 576.
 14. See Thomas F. Cotter, *A Burkean Perspective on Patent Eligibility*, 22 BERKELEY TECH. L.J. 855, 878-79 (2007) (“Patent law must keep pace with the times . . .”).
 15. There are areas of patent law the Supreme Court has not addressed for quite some time, including the enablement and written description requirements of § 112 of the Patent Act. See *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1345-47 (Fed. Cir. 2010) (en banc) (citing older Supreme Court cases interpreting § 112); *id.* at 1364 n.* (Rader, J., dissenting in part and concurring in part) (noting that the Supreme Court in a recent decision “hardly purported to resolve the present question” regarding the requirements of § 112); see also 35 U.S.C. § 112 (2017). Just as *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.* potentially invalidated thousands of patents in a single stroke, see 569 U.S. at 590-95, so too could a ruling changing the law on written description or enablement.
 16. See 560 U.S. 702, 713-15 (2010) (plurality opinion); see also U.S. CONST. amend. V (“[N]or shall private property be taken for public use, without just compensation.”).

governmental insurance for patentholders and guarantee that courts could not undermine investment-backed reliance interests by changing the law. Here too, however, the cure would be worse than the disease. If changes to patent law were classified as judicial takings, legal change would become impossible or prohibitively expensive. Takings law could also distort the path of legal change if judges favor (or disfavor) patents protected by takings law.

A different approach is called for. Instead of stasis or treating changes to patent law as takings, federal courts—or at least patent courts—should be given the authority to hand down decisions that are prospective only. That is, they should have the power to determine that a particular decision affects only patents whose owners applied for them on or after the date of that decision. Nonretroactive lawmaking is a mechanism frequently employed by both Congress and agencies to mitigate the downsides of legal transitions.¹⁷ Presenting judges with this option would decouple a judicial decision's prospective effect—which is presumptively positive—from the backward-looking harm it might do to investment-backed expectations and reliance interests. This would provide courts with an avenue for updating legal rules without doing violence to the stable legal rights necessary to encourage ongoing investment in R&D. Patent law would become more dynamic and less hidebound. It would also become more effective.

There is even an existing model for this type of judicial flexibility: the law of habeas corpus. When the Supreme Court recognizes a constitutional criminal procedural right, that ruling generally does not apply retroactively to all prisoners who were convicted under the prior rules. Rather, under the rule announced by a plurality of the Court in *Teague v. Lane*¹⁸ and subsequently codified by the Antiterrorism and Effective Death Penalty Act of 1996 (AEDPA),¹⁹ newly announced procedural rights do not apply to convictions

17. See *infra* text accompanying notes 166-69. By contrast, courts are by far the dominant expositors of patent law. Administrative agencies do not have substantive rulemaking authority within the patent realm, and Congress has not made significant *substantive* changes to patent law in over sixty years (the America Invents Act made only a variety of *procedural* changes). See Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470, 472 (2011); Jonathan S. Masur, *Regulating Patents*, 2010 SUP. CT. REV. 275, 279; see also Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified as amended in scattered sections of the U.S. Code). One of us has argued that this state of affairs should be altered, with more power afforded agencies to make substantive patent law. See Masur, *Regulating Patents*, *supra*, at 279. For purposes of this Article, however, we take this institutional arrangement as given.

18. 489 U.S. 288 (1989).

19. See 28 U.S.C. § 2254(d)(1) (2017) (providing that habeas relief is only available when a state court decision “was contrary to, or involved an unreasonable application of, *clearly established* Federal law, as determined by the Supreme Court of the United States” (emphasis added)); see also Antiterrorism and Effective Death Penalty Act of 1996, Pub. L. No. 104-132, § 104, 110 Stat. 1214, 1218-19 (codified as amended at 28 U.S.C. § 2254).

that are already final.²⁰ Thus, when the Supreme Court creates a new rule of criminal procedure, that rule applies only quasi-prospectively: to future cases and cases pending on direct appeal, not to the thousands (or tens of thousands) more in which the conviction is final and the prisoner seeks habeas relief.

Habeas is the only area of law in which quasi-prospective judicial lawmaking has become common, but it need not be.²¹ Indeed, nonretroactive lawmaking is a staple of legislation and regulation, and thus it pervades most areas of federal law.²² Patent law, by contrast, is one of the few areas of federal law governed primarily by judicial decisions rather than statutes or regulations.²³ It makes no sense to deprive the patent system of a critical legal tool available in so many other legal fields, particularly when this tool's value is potentially greatest in the context of patents and the innovation economy.

This Article proceeds in four Parts. Part I analyzes the problems created by changes in patent law—even changes that produce marked improvements in the law. Part II considers the possibility that judges should respond by adhering more strictly to *stare decisis* and reducing the rate of legal change, eventually concluding that such a course would be ill-advised. Part III addresses takings law as a potential solution, rejecting it as an overly rigid and asymmetric response to a symmetric problem. Finally, Part IV suggests that judges should solve the problem of damage to investment-backed reliance interests by issuing purely prospective patent rulings, and then analyzes the costs and benefits of such an approach.

I. Patents and Reliance Interests

The goal of patent law is to induce private firms to invest in innovation and R&D by granting them quasi-monopoly power over their successful inventions in exchange for public disclosure of those inventions.²⁴ Patents,

20. See *Teague*, 489 U.S. at 310-11 (plurality opinion). The potential relationship between habeas law and patent law is discussed more fully in Part IV.C.1 below.

21. See, e.g., *Harper v. Va. Dep't of Taxation*, 509 U.S. 86, 94-99 (1993) (discussing the circumstances under which retroactivity in civil cases is permitted); see also *infra* Part IV.C.1. The qualified immunity defense in civil rights litigation also provides some mechanism for quasi-prospective lawmaking. Even if a court finds that an asserted constitutional right exists, defendants can establish immunity by showing that the right was not “clearly established at the relevant time.” See, e.g., *Plumhoff v. Rickard*, 134 S. Ct. 2012, 2020 (2014).

22. See *infra* text accompanying notes 166-67.

23. See Masur, *Regulating Patents*, *supra* note 17, at 276-77 (expanding upon this point).

24. See DONALD S. CHISUM ET AL., *PRINCIPLES OF PATENT LAW* 2-3, 6 (1998) (explaining this tradeoff); see also ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 253-56 (4th ed. 2007) (describing various incentive systems believed to drive patent law); Ian Ayres & Gideon Parchomovsky, *Tradable*
footnote continued on next page

unlike grants or tax incentives, are ex post rewards—the firm invests resources first, with the hope that the R&D project will bear fruit and then result in a patent.²⁵ The patent then allows the firm to recoup its upfront investment costs and turn a profit by charging higher prices for the patented product or service.²⁶ Patents can thus solve a public goods problem: Innovation is a public good, and it is likely to be underproduced if its producers cannot capture the value of their efforts due to the free riding of others.²⁷

As many commentators have noted, this means that patent law must be “correct” (or nearly so) if it is to be effective.²⁸ If the law is too lax, and patents are too easy to obtain, would-be inventors will spend their time on unproductive projects rather than genuine innovation.²⁹ In addition, the proliferation of patents on largely worthless inventions might inhibit future inventors and drive up prices for consumers to such levels that the patents are doing more harm than good.³⁰ On the other hand, if the law is too strict, and patents are too hard to obtain, then patents will provide little or no incentive to would-be inventors and will not encourage additional innovation.³¹

But it is not enough for the law to be correct. One of the peculiarities of patent law is that it must also be relatively *stable*. The reason is the lag time

Patent Rights, 60 STAN. L. REV. 863, 867 (2007) (explaining how patents involve a tradeoff between innovation and distortions in price).

25. See Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patent-Prizes Debate*, 92 TEX. L. REV. 303, 308 (2013) (classifying intellectual property incentive systems on the basis of whether they operate ex ante or ex post, among other dimensions).

26. See Anup Malani & Jonathan S. Masur, *Raising the Stakes in Patent Cases*, 101 GEO. L.J. 637, 642-43 (2013).

27. See David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 191-94 (2009).

28. See, e.g., *id.* at 193-94 (“Thus it is vitally important that the patent laws be properly balanced. If the patent laws extend too far, they decrease social utility by allowing more harm to society from patent monopoly than is gained by promoting new inventions. If the patent laws provide too little protection for inventions, then social utility is decreased because inventors do not have adequate incentive to invent.”); Gideon Parchomovsky & Peter Siegelman, *Towards an Integrated Theory of Intellectual Property*, 88 VA. L. REV. 1455, 1504-08 (2002) (suggesting that as patents become too strong or too weak, they cease to be helpful and become only a drag on innovation).

29. See Stephen Yelderman, *The Value of Accuracy in the Patent System*, 84 U. CHI. L. REV. 1217, 1245-47 (2017) (arguing that granting bad patents will induce firms to substitute strategic patenting for genuine innovation).

30. See Christopher R. Leslie, *The Anticompetitive Effects of Unenforced Invalid Patents*, 91 MINN. L. REV. 101, 119-20 (2006) (describing how invalid patents lead to higher prices that harm consumers and benefit initial monopolists); Masur, *Patent Inflation*, *supra* note 17, at 479-80 (“Invalid, improperly granted patents can dissuade potential competitors from entering a market and stunt investment in further research.”).

31. See Yelderman, *supra* note 29, at 1249 (explaining that denials of patents for otherwise patentable inventions diminish inventors’ ex ante incentives).

between R&D investments and patent rewards. A firm invests in R&D with the belief that some number of years down the road, it will be able to recoup those investments and turn a profit by leveraging the patents it has obtained.³² Some types of inventions, such as pharmaceutical drugs, can be valuable even in their twentieth (and final) year of patent life.³³ Accordingly, a pharmaceutical drug company that embarks on a research project in 2017 must consider what legal rights it will have in its inventions in 2037 or beyond.

All of this is to say that firms form reliance interests around patents.³⁴ They are willing to invest in R&D at time t_1 in reliance on the belief that they will be able to obtain patents and use those patents to earn profits at time t_2 .³⁵ Patent law, however, is not fixed in place. It is continually in flux, occasionally because of changes enacted by Congress,³⁶ but more frequently because of judicial changes to the common law of patents.³⁷ The Supreme Court alone has

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32. See Hemel & Ouellette, *supra* note 25, at 310-12, 319-20, 326 (explaining the economics behind patent-backed investments).
33. See 35 U.S.C. § 154(a)(2) (2017) (providing that patents last for twenty years); Lara J. Glasgow, *Stretching the Limits of Intellectual Property Rights: Has the Pharmaceutical Industry Gone Too Far?*, 41 IDEA 227, 232, 236 (2001) (discussing the substantial financial blow pharmaceutical companies suffer within months of the expiration of their patents). Congress recognized this particular problem for pharmaceutical patents by creating patent term extensions for pharmaceutical products. See Drug Price Competition and Patent Term Restoration Act of 1984, Pub. L. No. 98-417, sec. 201(a), § 156, 98 Stat. 1585, 1598-602 (codified as amended at 35 U.S.C. § 156).
34. See Doug Lichtman & Mark A. Lemley, *Rethinking Patent Law's Presumption of Validity*, 60 STAN. L. REV. 45, 52 (2007) (suggesting that patents are presumed valid in part because of the reliance interests attached to them); see also 35 U.S.C. § 282(a) (providing for a presumption of validity).
35. The argument here centers on a reward theory of patent rights, in which the purpose of patents is to provide rewards for inventors who have made substantial up-front investments in developing new technology. This is the leading theory of patents, which is why we make it our focus. But it is important to note that reliance interests would loom just as large even if one adopted another theory of patents, such as the commercialization theory, see generally Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341 (2010); the coordination theory, see generally Stephen Yelderman, *Coordination-Focused Patent Policy*, 96 B.U. L. REV. 1565 (2016); the prospect theory, see generally Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977); or the signaling theory, see generally Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625 (2002).
36. See, e.g., Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3, 125 Stat. 284, 285-93 (2011) (codified as amended in scattered sections of 35 U.S.C.) (changing U.S. patent rights from a "first to invent" system to a "first inventor to file" system).
37. See Holly Forsberg, Note, *Diminishing the Attractiveness of Trolling: The Impacts of Recent Judicial Activity on Non-Practicing Entities*, PITT. J. TECH. L. & POL'Y 12-13 (Fall 2011) (discussing the recent trend in patent law of judicial change rather than legislative reform).

decided forty patent cases since 2005,³⁸ while the Federal Circuit has decided hundreds of cases during that time, many of which have revised the law in significant ways.³⁹

Each time a court or Congress changes patent law, it damages these existing reliance interests. This, in turn, can lead to less R&D investment, as measured against the baseline of how firms would behave if the law were static. Paradoxically, the social harm that occurs is not to existing patentholders, the ones whose legal rights are actually affected. These firms, which possess patents, have already engaged in the innovation that patent law is meant to encourage. Their R&D dollars have already been spent. The social good that patent law is meant to encourage—greater investment in R&D and innovation—has already occurred within these firms. If a firm's existing patents are invalidated or made less valuable, there is certainly private harm to that firm. But from a static, social perspective, this is just a wealth transfer from the firm to the general public. No harm has occurred.⁴⁰

Rather, when the law changes and reliance interests are damaged, the social harm that occurs is due to the fact that *future* innovators cannot be certain that the law will preserve their prospective patent rights. If patent law is generally unstable, innovative firms (or investors) may fear that they will never recoup their R&D investments and therefore refrain from making those investments in the first place. Alternatively, they may hold their innovations as trade secrets and refrain from sharing them with the public.⁴¹ Either of these

38. See Lisa Larrimore Ouellette et al., *Supreme Court Patent Cases*, WRITTEN DESCRIPTION, <https://perma.cc/2DQV-VQFU> (archived Mar. 3, 2019). One additional case was argued in February 2019 and is currently pending before the Supreme Court. See Transcript of Oral Argument, *Return Mail, Inc. v. U.S. Postal Serv.*, No. 17-1594 (U.S. Feb. 19, 2019), 2019 WL 719101.

39. See U.S. Court of Appeals for the Fed. Circuit, Year-to-Date Activity as of December 31, 2017 (n.d.), <https://perma.cc/6TLG-8C5M>. For significant examples, see *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336 (Fed. Cir. 2010) (en banc) (written description requirement); *Janssen Pharmaceutica N.V. v. Teva Pharm. USA, Inc.* (*In re '318 Patent Infringement Litig.*), 583 F.3d 1317 (Fed. Cir. 2009) (enablement requirement); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301 (Fed. Cir. 2009) (damages); and *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc) (claim construction).

40. This follows from the fact that patents represent a tradeoff between dynamic efficiency (innovation) and static inefficiency (monopoly prices, hold-up concerns, and so forth). See Parchomovsky & Siegelman, *supra* note 28, at 1504-08. If the innovation has already occurred, then the dynamic efficiency has already been realized. Invalidating the patent at that point imposes no further social harm.

41. See Neil M. Goodman, Note, *Patent Licensee Standing and the Declaratory Judgment Act*, 83 COLUM. L. REV. 186, 212-13 (1983). A trade secret is a relevant piece of business information that a firm elects to maintain as a secret, rather than sharing it with the public (as is a precondition of obtaining a patent). See *id.* Trade secrets can, in theory, last indefinitely if the secret is never discovered. *Id.* at 213. But they can also evaporate quickly if a member of the public is able to reverse engineer the product and learn the secret.

approaches would slow the pace of technological advancement. An unstable patent law threatens to reinstate the problem of public goods and free riding that motivates patent law in the first place.

There are clear analogies to the law of real property and to industrial regulation that are instructive and highly relevant. Imagine that a firm is considering building a factory on a piece of land it owns that is zoned for industrial use. The upfront cost of the factory is large, but the firm expects to recoup the cost and turn a profit by selling the goods produced in the factory over a twenty-year period. Of course, if at some point in the subsequent twenty years the firm were to be stripped of its ownership interest in the land on which the factory is built, the firm's investment in the factory would be destroyed and the firm would suffer a substantial loss. Likewise for the zoning rule—if the property were to be rezoned for only residential use, preventing the factory from operating, the firm would be harmed.⁴² The firm is willing to make the upfront investment of constructing the factory only if it is confident that the laws governing its property will remain relatively stable over time.⁴³

Similarly, imagine that a particular Chemical *X* is essential to the production processes planned for this factory. Chemical *X* is currently thought to be quite safe and is regulated only loosely. It is always possible, however, that scientists will learn at some point that Chemical *X* is in fact quite dangerous, and that the Environmental Protection Agency or the Occupational Safety and Health Administration will move to regulate it more stringently.⁴⁴ If the firm is required to install safety equipment or take other precautions, this will eat into its profits but not destroy the value of its investment; if Chemical *X* is banned entirely, the value of the factory will be lost. Here, too, the firm is reliant upon relative stability in the regulatory regime surrounding Chemical *X*, which potentially involves both legal uncertainty and scientific

42. See Cullen Christie Wilkerson, Comment, *Just Compensation for Temporary Regulatory Takings: A Discussion of Factors Influencing Damage Awards*, 35 EMORY L.J. 729, 765-72 (1986) (discussing the economic harm from rezoning property after it has been developed).

43. See Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 DUKE L.J. 1, 26 (2004) (“[P]roperty creates incentives for development by identifying those who have claims to particular resources and thereby ensuring that they can appropriate the fruits of their efforts to cultivate these resources.”).

44. See Jonathan S. Masur & Eric A. Posner, *Unquantified Benefits and the Problem of Regulation Under Uncertainty*, 102 CORNELL L. REV. 87, 119-25 (2016) (describing how regulators may assess the use of a harmful pollutant in the workplace).

uncertainty (that is, the possibility that new facts regarding the dangerousness of Chemical *X* will be discovered).⁴⁵ The same dynamics apply with respect to patent law.⁴⁶

Importantly, legal instability can upset reliance interests and create problems of inadequate investment regardless of whether the change in the law is generally helpful or harmful. What matters are the expectations of the private firms that make investment decisions.⁴⁷ So long as a change in the law leads them to believe that other changes may be forthcoming and may negatively affect their future investments, they will be more inclined to refrain from making those investments. For instance, consider the Supreme Court's 2012 decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, which invalidated certain types of medical diagnostic tests as unpatentable under § 101 of the Patent Act.⁴⁸ Let us stipulate that *Mayo* was rightly decided as a matter of policy—that the patent system will function better if these types of inventions are not patentable.⁴⁹ Firms that observe the *Mayo* decision might nonetheless conclude that the courts will render further decisions of this type in the future, decisions in which they declare certain types of inventions

45. Private insurance against legal change or uncertainty is essentially impossible to obtain. See Jonathan S. Masur & Jonathan Remy Nash, *The Institutional Dynamics of Transition Relief*, 85 N.Y.U.L. REV. 391, 408 (2010).

46. This is particularly the case in certain fields, such as biotechnology. For example, the ability to satisfy the written description requirement by depositing an actual specimen of biological material has been hotly contested. See, e.g., *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 960-61, 963-67 (Fed. Cir. 2002) (holding that such a deposit satisfies the written description requirement). The Supreme Court has not addressed whether deposits can satisfy the written description requirement, and if it overturned the Federal Circuit on this subject retroactively, the decision would likely have a profound effect on the biotechnology industry. That is, of course, if the Supreme Court agrees that a separate written description requirement even exists. Cf. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1362 (Fed. Cir. 2010) (en banc) (Rader, J., dissenting in part and concurring in part) (arguing that there is no such separate requirement).

47. See Jill E. Fisch, *Retroactivity and Legal Change: An Equilibrium Approach*, 110 HARV. L. REV. 1055, 1105 (1997) (describing the relationship between private parties' expectations and their behavior).

48. See 566 U.S. 66, 72 (2012).

49. This is debatably true. Compare, e.g., Bernard Chao, *Moderating Mayo*, 107 NW. U. L. REV. COLLOQUY 82, 99 (2012) (supporting the decision), with, e.g., Gene Quinn, *Killing Industry: The Supreme Court Blows Mayo v. Prometheus, IPWATCHDOG* (Mar. 20, 2012), <https://perma.cc/FZ5U-8DL8> (criticizing the decision), and Michael Risch, *Patentable Subject Matter, the Supreme Court, and Me*, MADISONIAN (Mar. 20, 2012), <https://perma.cc/8PB2-2ZW4> (same).

unpatentable and thus upend reliance interests.⁵⁰ If firms fear that the innovations they produce will lose value due to future changes in the law, they will reduce their investments in R&D accordingly.

However, this certainly does *not* mean that changes to the law are always bad. If a particular legal doctrine is doing substantially more harm than good, the value of changing that doctrine may vastly outweigh the cost of unsettling expectations. Again, the analogy to real property and regulation is instructive. Imagine that, per the example above, scientists discover that even low doses of Chemical *X* are toxic. Banning Chemical *X* will harm the reliance interests of firms that are using it, and the change in the law will create uncertainty that may dampen future investment. But these negative considerations are dwarfed by the value of eliminating a harmful toxin.⁵¹ As a general matter, the effects of instability on investment should be thought of as a cost to legal change.⁵² That cost may be large in some cases and small in others; it may be outweighed by other benefits from the legal change in some cases and not in others. But it will exist nearly any time the law is altered.

Changes to patent law most evidently produce investment-related costs when courts invalidate existing patents and narrow the scope of what is patentable. But in fact, any type of decision that affects patent law can damage reliance interests. For instance, a judicial decision reducing the amount of damages that can be collected in infringement suits would diminish the value of the affected patents.⁵³ If the reduction in damages is substantial enough, it could affect firms' investment decisions.⁵⁴

Perhaps even more critically, the concerns are symmetric: Judicial decisions that strengthen patents can harm reliance interests just as much as decisions that weaken patents. To illustrate, imagine a firm that copies the

50. This outcome has plausibly occurred, *see Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1373 (Fed. Cir. 2015) (invalidating a patent on a prenatal diagnostic test), sparking criticism, *see, e.g.,* Dennis Crouch, *In Brief: Amici Provide Reasons to Reconsider Ariosa v. Sequenom*, PATENTLY-O (Aug. 30, 2015), <https://perma.cc/ECT2-EXFM>.

51. *See Masur & Posner, supra* note 44, at 125 (explaining how these types of costs and benefits should be weighed).

52. *See, e.g.,* Nestor M. Davidson, *Property's Morale*, 110 MICH. L. REV. 437, 439-41 (2011) (describing the way in which people can experience harm and incur costs when their property rights are upset, or if they believe those rights are unstable).

53. *See, e.g.,* *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1336-39 (Fed. Cir. 2009) (curtailing the circumstances in which courts may use the "entire market value rule" to assess patent damages, and thus reducing the damages that patent plaintiffs will receive).

54. On the whole, however, invalidity (and validity) decisions will probably have a greater impact on reliance interests, because they can affect the full value of a patent. Infringement (or noninfringement) decisions will usually have only a fractional impact on patent value, such as if they slightly narrow the scope of the patent or limit the amount of damages available.

business model of a competitor. The firm believes—correctly, for the moment—that business models cannot be patented, and thus that it cannot be sued for patent infringement by the competitor.⁵⁵ If the courts were to change the law and allow patents on business methods, the reliance interests of this firm would be destroyed, no less than if its own patents had been invalidated.⁵⁶ Freedom to operate can be just as valuable as the patent-based right to exclude.⁵⁷ Of course, in many cases the reliance interests of these types of firms will nonetheless be protected by other provisions of patent law. For instance, once a firm has been publicly using a process or producing a good for more than one year, that process or good can no longer be patented, and other firms using it can no longer lose their freedom to operate.⁵⁸ But there may be many cases in which allowing new types of patents or strengthening existing patents does violence to investment incentives in ways that patent law does not otherwise prevent. Here, it is the fear that patent law will expand and become more powerful that might diminish future investment by firms that do not seek patents.

How should courts behave in the face of these concerns? How should they behave when any given instance of legal change creates systemic costs? One option is to simply refrain from altering the law, or at least to reduce the rate at which they do so. That possibility is the subject of the next Part.

II. Reliance Interests and the Preservation of the Status Quo

If legal change harms reliance interests and diminishes investment incentives, one solution is for judges to enforce consistency and stability in the law—or at least to place a thumb on the scale in favor of the status quo. In fact, this approach is as old as the common law itself. *Stare decisis* is founded on this

55. See *Bilski v. Kappos*, 561 U.S. 593, 612-13 (2010) (holding that certain types of business methods are unpatentable).

56. In fact, business methods *were* unpatentable until the Federal Circuit held that business methods were patentable in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* See 149 F.3d 1368, 1375 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008), *aff'd sub nom. Bilski*, 561 U.S. 593.

57. See Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 303-04 (2010).

58. See 35 U.S.C. § 102(b) (2017).

principle: Courts are advised to adhere to precedent when in doubt so as not to upset settled reliance interests.⁵⁹ The consequence is that courts will often shy away from making substantial legal changes, even when they would have reached a different outcome if they were considering the issue as a matter of first impression.⁶⁰ Even during a period of rapid legal change, such as patent law has experienced over the past decade, courts may shy away from altering the law in ways that seem too sudden or consequential.

Examples of such judicial reticence can be found throughout the law,⁶¹ and patent law is no exception. One notable instance is Judge Moore's concurring opinion in *Ass'n for Molecular Pathology v. United States Patent & Trademark Office*, a portion of which appears in this Article's epigraph.⁶² That famous case involved the patentability of isolated sequences of DNA and complementary DNA (cDNA).⁶³ In her opinion, Judge Moore argued that both isolated DNA and cDNA were patentable, in large part because of the reliance interests that

59. See, e.g., *Payne v. Tennessee*, 501 U.S. 808, 828 (1991) ("Considerations in favor of *stare decisis* are at their acme in cases involving property and contract rights, where reliance interests are involved . . ."); see also Randy J. Kozel, *Precedent and Reliance*, 62 EMORY L.J. 1459, 1460 (2013) (noting that the principle of *stare decisis* is thought to be based on concern for reliance interests).

60. See Randy J. Kozel, *Stare Decisis in the Second-Best World*, 103 CALIF. L. REV. 1139, 1190-91 (2015) (explaining how *stare decisis* can lead to outcomes that are inferior to those that would have been reached had a court been considering the question as a matter of first impression); see also Richard H. Fallon, Jr., *A Constructivist Coherence Theory of Constitutional Interpretation*, 100 HARV. L. REV. 1189, 1261 (1987) ("Though precedents can be rejected based on arguments from text and the framers' intent, this seldom happens. The cases take on a significance of their own.").

61. Perhaps the most famous application of *stare decisis* is the Supreme Court's decision in *Planned Parenthood of Southeastern Pennsylvania v. Casey*, in which the Court upheld the right to abortion it had announced in *Roe v. Wade* in part because of the reliance interests that had formed around that prior decision. See *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 855 (1992) ("The inquiry into reliance counts the cost of a rule's repudiation as it would fall on those who have relied reasonably on the rule's continued application."); see also *Roe v. Wade*, 410 U.S. 113 (1973).

62. See 689 F.3d 1303, 1343 (Fed. Cir. 2012) (Moore, J., concurring in part), *aff'd in part, rev'd in part sub nom.* *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013); *supra* text accompanying note 2.

63. See *Ass'n for Molecular Pathology*, 689 F.3d at 1309. Isolated DNA consists of DNA sequences that code for particular genes that have been separated from surrounding biological materials and from the DNA sequences on either side of them. See Stephen H. Schilling, Note, *DNA as Patentable Subject Matter and a Narrow Framework for Addressing the Perceived Problems Caused by Gene Patents*, 61 DUKE L.J. 731, 749-52 (2011). Isolated cDNA refers to isolated DNA sequences from which the introns—the base pairs that do not contain any usable genetic information—have been removed. See *id.* at 749-50. Both types can form the basis for significant biotechnology inventions. See *id.* at 752.

had been built up over the decades during which courts and the PTO had allowed patents on these types of inventions.⁶⁴ Wrote Judge Moore:

If I were deciding this case on a blank canvas, I might conclude that an isolated DNA sequence that includes most or all of a gene is not patentable subject matter. . . . But we do not decide this case on a blank canvas. Congress has, for centuries, authorized an expansive scope of patentable subject matter. Likewise, the United States Patent Office has allowed patents on isolated DNA sequences for decades, and, more generally, has allowed patents on purified natural products for centuries. There are now thousands of patents with claims to isolated DNA, and some unknown (but certainly large) number of patents to purified natural products or fragments thereof. . . . I believe we must be particularly wary of expanding the judicial exception to patentable subject matter where both settled expectations and extensive property rights are involved.⁶⁵

The Supreme Court would eventually disagree with this portion of Judge Moore's opinion, holding in *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.* that isolated DNA is not patentable.⁶⁶ But Judge Moore's concerns were legitimate, and she was exactly right to factor them into her decision. In a vacuum, Judge Moore might well have believed that isolated DNA should not be patentable, but she was not operating in a vacuum.⁶⁷

For every case such as *Myriad*, in which the Supreme Court was willing to forge ahead with legal change despite the potential harm to reliance interests, there are others in which the final court to consider the issue stayed its hand and adhered to precedent. One example is *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, which concerned prosecution history estoppel.⁶⁸ In an earlier case addressing the same issue, *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, the Supreme Court had noted the importance of maintaining consistent doctrinal standards over time on an issue that was central to many parties

64. See *Ass'n for Molecular Pathology*, 689 F.3d at 1343 (Moore, J., concurring in part).

65. *Id.* (footnote omitted).

66. See 569 U.S. at 580 (holding that isolated DNA is unpatentable but cDNA is patentable).

67. *Myriad* represents an especially damaging type of retroactive legal change. Isolated genomic DNA patent claims prior to *Myriad* had value, but much of that value could be equally captured by claims to cDNA arising from the same inventive work. See Jessica L.A. Marks et al., *Gene Patents Won't Disappear Post-Myriad*, FINNEGAN (July 22, 2013), <https://perma.cc/4SEL-X5WB>. The Supreme Court in *Myriad* held that cDNA claims were patentable. See 569 U.S. at 580. Imagine a patent-owning firm with claims to isolated genomic DNA that could have, but did not, include a claim for a cDNA sequence. That patentholder would have been dramatically affected by *Myriad* all because of an accident of claim drafting. It might have relied on the PTO and Federal Circuit's view that isolated DNA was patentable. But once the Supreme Court decided otherwise, the patentee's opportunity for claiming the cDNA invention would have passed, leaving the firm with no recourse. Cf. David L. Schwartz, *Retroactivity at the Federal Circuit*, 89 IND. L.J. 1547, 1553-55 (2014) (explaining the retroactive effects of patent decisions).

68. See 535 U.S. 722, 726 (2002).

within the patent system.⁶⁹ In *Festo*, which followed five years later, the Court doubled down on this idea. It admonished the Federal Circuit for “ignor[ing] the guidance of *Warner-Jenkinson*, which instructed that courts must be cautious before adopting changes that disrupt the settled expectations of the inventing community.”⁷⁰

In the years since, the Federal Circuit has cited *Festo*’s argument for maintaining the legal status quo in a legion of cases. One notable example is *Ariad Pharmaceuticals, Inc. v. Eli Lilly & Co.*, a case that concerned the written description requirement.⁷¹ Wrote the en banc court:

In addition to the statutory language and Supreme Court precedent supporting the existence of a written description requirement separate from enablement, *stare decisis* impels us to uphold it now. . . . [T]o change course now would disrupt the settled expectations of the inventing community, which has relied on it in drafting and prosecuting patents, concluding licensing agreements, and rendering validity and infringement opinions. As the Supreme Court stated in admonishing this court, we “must be cautious before adopting changes that disrupt the settled expectations of the inventing community.”⁷²

The en banc Federal Circuit took a similar tack in *Lighting Ballast Control LLC v. Philips Electronics North America Corp.*,⁷³ a case concerning the (relatively narrow) question of the standard of review for claim construction.⁷⁴

69. See 520 U.S. 17, 28 (1997) (“[T]he lengthy history of the doctrine of equivalents strongly supports adherence to our refusal . . . to find that the Patent Act conflicts with that doctrine.”).

70. 535 U.S. at 739 (citing *Warner-Jenkinson*, 520 U.S. at 28).

71. See 598 F.3d 1336, 1347 (Fed. Cir. 2010) (en banc). The written description requirement demands that an inventor demonstrate in the patent application that she is “in possession” of the invention—in the sense of having invented it and having recognized inventing it at the time of invention—before she can receive a patent. See *id.* at 1355. The necessary disclosure is that which a person of ordinary skill in the art would recognize as sufficient to convey possession of the invention, and not a subjective inquiry into what the inventor did or did not know. See *id.* at 1351.

72. *Id.* at 1347 (quoting *Festo*, 535 U.S. at 739).

73. 744 F.3d 1272 (Fed. Cir. 2014) (en banc). The Supreme Court later vacated the Federal Circuit’s decision and remanded for reconsideration in light of *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831 (2015). See *Lighting Ballast Control LLC v. Universal Lighting Techs., Inc.*, 135 S. Ct. 1173 (2015) (mem.).

74. See *Lighting Ballast Control*, 744 F.3d at 1281. Claim construction is the procedure in which a court interprets a patent claim and defines its legal meaning, similar to how a court might interpret a statute. See generally *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996) (describing the process and legal rules governing claim construction).

The court again quoted *Festo* to explain its unwillingness to change the existing standard:

Stare decisis embraces procedural as well as substantive precedent. Procedures in the litigation-prone arena of patent rights can affect the cost, time, and uncertainty of litigation, and in turn affect economic activity founded on the presence or absence of enforceable patents. Courts should be “cautious before adopting changes that disrupt the settled expectations of the inventing community.”⁷⁵

Yet another example comes from *Immersion Corp. v. HTC Corp.*, a case that concerned the extent to which a patent application filed as a continuation of an earlier application could claim the filing date of the earlier application.⁷⁶ The Federal Circuit held that a continuation application may claim the filing date of a parent application if the continuation is filed on the same day the parent application issues, as had been the PTO’s practice for “half a century.”⁷⁷ Again, the court cited concern for reliance interests as a reason for preserving a longstanding standard. It explained that “the repeated, consistent . . . judicial and agency interpretations, in this area of evident public reliance, provide a powerful reason to read [the statute] to preserve, not upset, the established position.”⁷⁸ As the court noted, “[i]nvestment-backed expectations and reliance interests in patent law are often strong.”⁷⁹ These are merely a few prominent examples of patent cases in which courts’ concern for reliance interests played some role in decisions to preserve the legal status quo. Other such cases abound.⁸⁰

75. *Lighting Ballast Control*, 744 F.3d at 1283 (citation omitted) (quoting *Festo*, 535 U.S. at 739).

76. See 826 F.3d 1357, 1359, 1361 (Fed. Cir. 2016).

77. See *id.* at 1362-65.

78. *Id.* at 1365.

79. *Id.* at 1364 (citing *Festo*, 535 U.S. at 739).

80. See, e.g., *STC.UNM v. Intel Corp.*, 767 F.3d 1351, 1355 (Fed. Cir. 2014) (Dyk, J., concurring in the denial of the petition for rehearing en banc) (“The rule against involuntary joinder is well established. Changing that rule would upset settled expectations.”); *Hyatt v. Doll*, 576 F.3d 1246, 1273 (Fed. Cir. 2009) (referencing reliance interests and *stare decisis* as reasons for the outcome the court reached), *vacated on grant of reh’g en banc sub nom. Hyatt v. Kappos*, 366 F. App’x 170 (Fed. Cir. 2010); *Masco Corp. v. United States*, 303 F.3d 1316, 1327 (Fed. Cir. 2002) (declining to apply a statutory provision in a way that would “disrupt patentees’ settled expectations regarding the scope of their claims”). *But see, e.g., SCA Hygiene Prods. Aktiebolag v. First Quality Baby Prods., LLC*, 137 S. Ct. 954, 968-71 (2017) (Breyer, J., dissenting) (arguing that *stare decisis* compelled interpreting the Patent Act to include a laches defense); *In re Bilski*, 545 F.3d 943, 976-77 (Fed. Cir. 2008) (Newman, J., dissenting) (arguing that *stare decisis* and concern for reliance interests should have compelled the court to uphold the validity of business method patents), *aff’d sub nom. Bilski v. Kappos*, 561 U.S. 593 (2010).

Of course, this is not proof that concerns for investment-backed expectations were dispositive in these cases. Courts frequently pay lip service to various arguments when they would have reached the same outcome regardless.⁸¹ However, it seems quite likely that in at least some of these cases, the courts reached outcomes because of *stare decisis* and the fear of upsetting reliance interests that they would not have reached had the case been one of first impression. Judge Moore's concurring opinion in *Ass'n for Molecular Pathology* is the most notable such example, because she wrote separately specifically to make the point about reliance interests and because she noted explicitly that her vote might have been different had she been writing on a blank slate.⁸² But she is almost surely not the only judge to have reasoned along these lines.

It is not necessarily good or bad (from the perspective of social welfare) for judges to refrain from changing the law out of concern for reliance interests. As noted in Part I above, reliance interests in patent law are valid concerns, and courts should be wary of upsetting them to such a degree that patent-based investment in R&D begins to diminish. At the same time, there is an unavoidable tradeoff: If courts are not making necessary changes to the law, then the positive value of updating the law is lost. The result can be legal stultification. This is particularly salient in the context of patent law, where changes in technology and markets can render legal rules outdated at a faster rate than in other legal contexts.⁸³

The primary concern is that courts will err in the direction of the status quo, failing to change the law in some circumstances when the benefits of doing so would outweigh the costs. A related concern is that the PTO's zeal in

81. See, e.g., Daniel M. Friedman, *Expenses of Corporate Proxy Contests*, 51 COLUM. L. REV. 951, 952 (1951) ("The distinction between policy and personnel, however, is an artificial one, and the very courts that pay lip service to the doctrine recognize its dubious validity." (footnote omitted)); William H. Simon, *Transparency Is the Solution, Not the Problem: A Reply to Bruce Green*, 60 STAN. L. REV. 1673, 1685 (2008) (responding to Bruce A. Green, *The Market for Bad Legal Scholarship: William H. Simon's Experiment in Professional Regulation*, 60 STAN. L. REV. 1605 (2008)) ("[T]he court system pays lip service to values of public access, but it compromises these values . . ."); Cass R. Sunstein, Essay, *Beyond Marbury: The Executive's Power to Say What the Law Is*, 115 YALE L.J. 2580, 2608 (2006) ("Though the Supreme Court has not invoked the nondelegation doctrine to invalidate a federal statute since 1935, the Court continues to pay lip service to the doctrine and to hold it in reserve for extreme cases." (footnote omitted)).

82. See 689 F.3d 1303, 1343 (Fed. Cir. 2012) (Moore, J., concurring in part), *aff'd in part, rev'd in part sub nom.* *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013).

83. See Rafael X. Zahraiddin, Note, *The Effect of Broad Patent Scope on the Competitiveness of United States Industry*, 17 DEL. J. CORP. L. 949, 995 (1992) (explaining that rapid development in technology is not taken into account in patent law, to the detriment of innovation).

granting patents of a certain type could itself become the reason that those types of inventions are deemed patentable, if thousands of patents have already issued. Thus, an excessive focus on reliance interests could have the effect of placing too much power in the hands of the PTO.⁸⁴ Importantly, reluctance to alter the law out of fear of upsetting reliance interests is a self-reinforcing phenomenon—a positive-feedback cycle. A willingness on the part of the PTO to grant patents, and a willingness on the part of the courts to uphold them, will beget more such patents. Those patents will in turn beget even stronger reliance interests. If courts do not change the law as quickly as would be optimal for fear of harming established interests, the law can persist in a suboptimal state indefinitely. And reliance interests will not necessarily fade over time. To the contrary—in many cases, the longer reliance interests persist, the more entrenched they become, and the more that private parties learn to rely on them.

Consider *Myriad*, for example. If the Supreme Court had allowed the patents on isolated DNA to stand,⁸⁵ firms would have continued to file for those patents, and the PTO would have continued to grant them. The number of such patents would have continued to grow, as would the extent to which businesses relied upon those patents. The reliance interests would have been no weaker ten years later than they were when *Myriad* was decided. This pattern would reverse only if some exogenous shock caused the industry as a whole to fade or the importance of patents within the industry to diminish. Such a shock is of course possible, but it is not something that courts—or anyone else—can predict.

To summarize, the costs of upsetting reliance-based interests are real, and courts are right to take those costs into account. In some cases, these concerns will lead courts to refrain from changing the law, even when they believe that the law is not optimally calibrated. In many cases, courts are likely privileging the status quo to a greater extent than they should, leading to harmful legal ossification. But even when courts are deciding cases optimally, they cannot escape the costs of either (1) changing the law and thereby damaging investment-based expectations, or (2) preserving the status quo and thereby

84. *Cf. Ass'n for Molecular Pathology*, 689 F.3d at 1344-45 (Moore, J., concurring in part) (explaining that the fact that the PTO has granted numerous patents over a substantial period of time provides an argument against changing the law); Masur, *Regulating Patents*, *supra* note 17, at 278-79 (describing the balance of power between the PTO and the Federal Circuit and discussing which institution should be the prime mover in patent law).

85. *See supra* notes 62-66 and accompanying text.

forgoing the benefits of legal change. What is needed is some mechanism for protecting existing reliance interests while simultaneously allowing the courts to make productive updates to patent law. The following Part considers one possible mechanism.

III. Takings and Patent Retroactivity

Evolution in patent law, whether incremental or momentous, imposes costs on the private parties that rely upon the law. At the outset, those costs are privately borne, but they can metastasize into significant social harm if they induce private parties to reduce their R&D, or to eschew patents and rely instead on trade secret protection. Even worse, courts that attempt to take these costs into account will sometimes end up stultifying the law, to the detriment of the entire patent system. The goal of policymakers within the patent system should be to find a means of permitting updates to the law while simultaneously protecting existing reliance interests to the degree necessary to encourage continued investment.

This is the set of problems that takings law is meant to address. The Fifth Amendment provides that “private property [shall not] be taken for public use, without just compensation.”⁸⁶ If the government seizes private property without providing just compensation, the government seizure is considered null and void.⁸⁷ Takings law functions (in part) to protect reliance interests by ensuring that the property on which those interests are based is not seized or destroyed without the owner being compensated for her loss.⁸⁸ In that sense, it is a type of government-provided insurance. At the same time, takings law does not prevent legal change, even change that would destroy property. The law can always be adjusted, even in ways that would confiscate or destroy property, so long as just compensation is paid. Accordingly, it is worth considering takings law as a solution to the problem of legal instability in patent law. When a court changes patent law to the detriment of some preexisting interests, should the legal change be considered a judicial taking of the parties’ patent rights? This Part takes up that question, first from a normative and then from a descriptive perspective.

86. U.S. CONST. amend. V.

87. *See, e.g., Reg'l Rail Reorganization Act Cases*, 419 U.S. 102, 124-25 (1974).

88. *See* Joseph William Singer, *The Reliance Interest in Property*, 40 STAN. L. REV. 611, 737-39 (1988).

A. The Normative Case for and Against Applying Takings Law to Patents

At first glance, takings law would seem to be a fitting solution to the problem of legal instability in the patent context. In critical respects, the principles that underlie takings law mirror the concerns that arise when patent law is changed. First, takings law creates stable expectations for individuals and firms in order to induce them to invest in improving their property.⁸⁹ Recall the prior example of a firm that owns a plot of land and is considering building a factory.⁹⁰ If the government could seize the land without compensation, the firm would be reluctant to construct the factory, fearing that it will pay for the investment and then reap none of the rewards.⁹¹ Takings law thus acts as a type of social insurance against legal changes that might upset reliance interests.⁹²

These concerns apply equally to patent law. The R&D necessary to generate patentable inventions can be costly, and in many cases firms are unlikely to undertake that R&D without the promise of enforceable patents.⁹³ When the government invalidates existing patents through legal change, firms take note, and estimate a lower likelihood that they will be able to enforce their patents and use them to earn profits in the future.⁹⁴ The likely result is that firms will reduce investment in R&D, solely due to diminished confidence in their ability to rely on the patent rights they obtain.

89. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* § 3.1, at 40-41 (8th ed. 2011); Abraham Bell & Gideon Parchomovsky, *A Theory of Property*, 90 CORNELL L. REV. 531, 606-07 (2005); Davidson, *supra* note 52, at 453.

90. See *supra* text accompanying notes 42-43.

91. See POSNER, *supra* note 89, § 3.1, at 40-41 (explaining that property rights are necessary for investment).

92. See Singer, *supra* note 88, at 737-39.

93. There are of course means other than patents for funding or inducing innovation, see Hemel & Ouellette, *supra* note 25, at 307, but there is no question that patents account for a significant proportion of all innovation.

94. Evidence that this is taking place can be found in the reactions by firms to major patent decisions. See, e.g., JOHN R. THOMAS, CONG. RESEARCH SERV., R42815, *MAYO V. PROMETHEUS: IMPLICATIONS FOR PATENTS, BIOTECHNOLOGY, AND PERSONALIZED MEDICINE* 9 (2012) (noting the harm to medical diagnostic firms from the *Mayo* decision); Alexa Johnson, Note, *A Crisis of Patent Law and Medical Innovation: The Category of Diagnostic Claims in the Wake of Ariosa v. Sequenom*, 27 HEALTH MATRIX 435, 437-38 (2017); Charlotte Edwards, *Nu-Med Optimistic About Nitric Oxide Prospects After Patent Ruling*, VERDICT MED. DEVICES (Aug. 16, 2018), <https://perma.cc/X57Y-QKXQ>.

A similar analysis applies even after patents are granted. Patents are analogous to undeveloped real property.⁹⁵ The patent is only as valuable as its owner makes it; she must transform the invention embodied in the patent into a product or service with real market value. Yet this process is often expensive, particularly for certain types of inventions (such as pharmaceuticals), and in some cases firms will be reluctant to undertake the necessary investments without the assurance of substantial profits, which patents are supposed to provide.⁹⁶ Unforeseen changes in the law can thus diminish firms' willingness to invest in commercializing their patented inventions, just as the prospect of uncompensated takings could make owners of real property reluctant to construct factories or make other improvements.⁹⁷

Second, takings law forces the government to internalize the costs of its projects and distribute those costs among a larger number of taxpayers.⁹⁸ Suppose the government were considering constructing a public park on land currently occupied by four private homes. Ideally, the government would balance the benefits of the park against the costs of the lost homes and only pursue the project if its benefits exceeded its costs. But if the government could simply seize the property, it could externalize the costs onto the four homeowners who would lose their houses.⁹⁹

Requiring the government to compensate these homeowners for the taking of their houses changes the equation. The government must pay that compensation out of tax revenues, meaning that many of the same people who benefit from the park will also bear its costs.¹⁰⁰ If the park's beneficiaries will bear its costs as well, they are more likely to favor the project only when its benefits exceed its costs, and more likely to force the government to act accordingly.¹⁰¹

Here, the analogy to patent law is not as exact. To be sure, Congress or an executive branch agency might "take" a patent by infringing it, thus

95. See F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 710 (2001) (explaining that without patents, many inventions might remain undeveloped).

96. See *id.*

97. See Christopher Serkin, *The Meaning of Value: Assessing Just Compensation for Regulatory Takings*, 99 NW. U. L. REV. 677, 714-16 (2005) (suggesting that property owners should be partially but not entirely compensated for takings).

98. See *id.* at 705-06, 727-28; see also Thomas W. Merrill, *Incomplete Compensation for Takings*, 11 N.Y.U. ENVTL. L.J. 110, 131-33 (2002) (suggesting that the goal of encouraging the government to internalize the cost of its projects might support a system of incomplete compensation for takings).

99. See Serkin, *supra* note 97, at 705-06.

100. See *id.* at 724-28 (describing how takings force costs to be shared across a tax base).

101. See *id.* at 704-05 (describing the benefits of cost internalization).

externalizing the costs of a government project onto a single actor.¹⁰² But those sorts of actions are not the subject of interest here; judicially driven legal change is. Courts do not quite pursue “projects” in the same sense as a legislature or executive might, and courts do not control taxes or spending. Nor are courts politically accountable in the sense that they must weigh costs and benefits and suffer the consequences if they do not strike the balance appropriately.¹⁰³ At the same time, we do want judges who decide patent cases to attempt (so far as they can) to account for the costs and benefits of their decisions. Judges should not be making law while looking only at the benefits of a decision and ignoring its costs.¹⁰⁴ Similarly, while judges would not be responsible for paying compensation in the event of a taking, there is evidence that judges are responsive to views within elite legal circles regarding the optimal development of the law.¹⁰⁵ There is reason to believe that judges will render decisions in such a fashion as to maximize their standing within these circles.¹⁰⁶ Having to pay compensation for invalidated patents might change this calculus among patent stakeholders, and thus among patent judges.¹⁰⁷

At the same time, there are very strong considerations counseling against applying takings law to patents or any other system of legal change. The most significant is the cost of legal change. A new legal rule that invalidates thousands of existing patents could lead to claims against the government for billions of dollars or more.¹⁰⁸ Adjudicating the claims would also be incredibly

102. This frequently occurs in the context of Department of Defense contracts with private defense firms. *See generally* Timothy R. Wyatt, *In Search of “Reasonable Compensation”: Patent Infringement by Defense Contractors with the Authorization and Consent of the U.S. Government*, 20 FED. CIR. B.J. 79 (2010).

103. Executive agencies are required to conduct cost-benefit analyses, *see* Exec. Order No. 12,866, § 1, 3 C.F.R. 638, 638-40 (1993), *reprinted as amended in* 5 U.S.C. § 601 app. at 94, 95 (2017), but no such limit is placed on the courts.

104. *See generally* Jonathan S. Masur & Eric A. Posner, *Cost-Benefit Analysis and the Judicial Role*, 85 U. CHI. L. REV. 935 (2018) (describing the role that judges should play in evaluating cost-benefit analyses).

105. *See generally* Colleen V. Chien, *Patent Amicus Briefs: What the Courts’ Friends Can Teach Us About the Patent System*, 1 U.C. IRVINE L. REV. 395 (2011) (describing the influence of amicus briefs on patent courts).

106. *See, e.g.*, Richard A. Posner, *What Do Judges and Justices Maximize?: (The Same Thing Everyone Else Does)*, 3 SUP. CT. ECON. REV. 1, 13-14 (1993) (suggesting that judges derive utility from their popularity with members of the bar).

107. An aggrieved patent owner who believes that her patent has been taken might be able to file a claim under 28 U.S.C. § 1491 seeking compensation. *See* 28 U.S.C. § 1491(a)(1) (2017); *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1016 (1984); Bradley M. Taub, Comment, *Why Bother Calling Patents Property?: The Government’s Path to License Any Patent and Maybe Pay for It*, 6 J. MARSHALL REV. INTELL. PROP. L. 151, 157-58 (2006) (discussing the limited application of § 1491 to patents).

108. *See* Jonathan S. Masur, *CBA at the PTO*, 65 DUKE L.J. 1701, 1725-26 (2016) (offering back-of-the-envelope estimates of the values of various patents). This would be only a fiscal
footnote continued on next page

difficult and costly—the market value of a patent is usually far from clear, and it is typically much harder to discern than the market value of real property.¹⁰⁹ In other contexts, forcing the government to pay for its actions might be beneficial. Here, however, the administrative expense involved, as well as the fact that it would be courts that create the need for payment, would likely rob the arrangement of any value. Recall that the general rationale for requiring that takings be compensated is to force the government to internalize the costs of its actions.¹¹⁰ If it is the court that is taking an action, but the legislature that must then raise the necessary revenue to pay for it, this effort at cost internalization will fail. More likely, courts would become reluctant to enact legal change for fear of being blamed when they stick the federal government with an enormous bill.

In addition, takings law is a poor fit because it offers only an asymmetric solution to a symmetric problem. Recall that the problem of uncertainty in patent law affects both owners and nonowners of patents.¹¹¹ Just as some firms rely on the continued existence of patents to justify and fund their R&D operations, other firms rely on the continued *nonexistence* of certain types of patents to offer them freedom to operate without fear of being sued.¹¹² The problems caused by legal instability apply symmetrically, affecting legal changes that increase or decrease the power of patents. Legal change that strengthens patents or expands their reach can harm these existing reliance interests just as much as legal change that weakens or invalidates patents can

cost, rather than a net social cost. Invalidating scores of patents would provide an immediate benefit to consumer welfare by eliminating the “shadow tax” those patents impose on consumer products. See Hemel & Ouellette, *supra* note 25, at 312. The overall social benefits might outweigh the costs. Nevertheless, in practical terms, the federal government would be reluctant to pay its share of the costs out of the federal fisc each time valuable patents were invalidated, and the courts would likely be reluctant to run up the federal tab in this fashion.

109. See Jonathan S. Masur, *The Use and Misuse of Patent Licenses*, 110 NW. U. L. REV. 115, 122-25 (2015) (describing the difficulties courts face in valuing patents).

110. See Serkin, *supra* note 97, at 714-16.

111. See *supra* notes 40-41 and accompanying text.

112. See generally M. Henry Heines, *The Two Faces of Patent Due Diligence: A Case Study in Solar Cells and Nanotechnology*, 6 NANOTECHNOLOGY L. & BUS. 4 (2009) (describing the importance of establishing freedom to operate by ascertaining that a new product will not give rise to a patent infringement suit).

harm reliance interests founded on those patents. For example, broadening the scope of patent claims can frustrate past efforts at designing products to avoid infringement.¹¹³

Takings law, by contrast, works asymmetrically. It is possible to imagine a judicial decision invalidating a patent being treated as a judicial taking¹¹⁴ and—if the taking is not compensated—the decision being declared unconstitutional and void.¹¹⁵ But it is essentially impossible to imagine a judicial decision expanding patent rights being treated as a taking. As an analytic matter, the absence of property rights—or freedom to operate—has never been classified as “property,” and it is hard to imagine a court stretching the definition so far as to accommodate it.¹¹⁶ And as a practical matter, it would be nearly impossible to determine which parties were affected by the decision and therefore deserved compensation. If takings law were applied to changes in patent law, it would apply only to the loss of patent rights.

This would skew outcomes in the courts. Courts might be more willing to make changes that invalidated existing patents if they knew the owners of those patents would be compensated for the loss of their intellectual property rights. Courts might also be more willing to make changes that expanded intellectual property rights if it were costless to do so. But either way, the fact that only one side would receive compensation would affect courts’ decisionmaking.¹¹⁷ For this reason, as well as the others described above, it would be normatively undesirable if courts began to treat changes in substantive patent law as takings for purposes of the Fifth Amendment.

So much for the normative case—what is the state of the law? Are judicial changes that lead to patent invalidations potentially judicial takings? The next two Subparts consider that question.

113. Firms expend resources in securing freedom to operate before making substantial investment in development projects. See Rebecca S. Eisenberg, *Noncompliance, Nonenforcement, Nonproblem?: Rethinking the Anticommons in Biomedical Research*, 45 HOUS. L. REV. 1059, 1077 (2008) (citing John P. Walsh et al., *Effects of Research Tool Patents and Licensing on Biomedical Innovation*, in PATENTS IN THE KNOWLEDGE-BASED ECONOMY 285, 292-94 (Wesley M. Cohen & Stephen A. Merrill eds., 2003)).

114. See *infra* text accompanying notes 135-38.

115. See *supra* text accompanying note 87.

116. That is to say, it has never been classified as property in a legal sense, or for purposes of the takings clause. Various scholars have described the public domain as a type of property available to everyone. See generally James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, LAW & CONTEMP. PROBS., Winter-Spring 2003, at 33 (using the language of property to describe the public domain as common property available to all).

117. Cf. John Bronsteen, *Against Summary Judgment*, 75 GEO. WASH. L. REV. 522, 542-43 (2007) (describing the effects of asymmetric incentives on judicial decisionmaking).

B. Are Patents Property for Purposes of the Takings Clause?

The Supreme Court has held that because “[p]atents . . . have long been considered a species of property . . . , they are surely included within the ‘property’ of which no person may be deprived by a State without due process of law.”¹¹⁸

However, property rights entitled to protection under the Due Process Clause of the Fifth Amendment are not necessarily entitled to protection under the Takings Clause.¹¹⁹ This is particularly true of property rights that fall within the category of federally created benefits.¹²⁰ In *Bowen v. Gilliard*, the Supreme Court held that a reduction in benefits from a government program could be subjected to due process scrutiny but could not constitute a taking under the Fifth Amendment.¹²¹ The analogy between the benefits at issue in *Bowen* and patents is of course imperfect. But the holding in *Bowen* demonstrates generally that the description of patents as property in other contexts is not dispositive to the question of patents’ status as property under the Takings Clause.

Instead of the Takings Clause, much of the action regarding patents relates to 28 U.S.C. § 1498. That statute provides:

Whenever an invention described in and covered by a patent of the United States is used or manufactured by or for the United States without license of the owner thereof or lawful right to use or manufacture the same, the owner’s remedy shall be by action against the United States in the United States Court of Federal Claims for the recovery of his reasonable and entire compensation for such use and manufacture.¹²²

Patentees thus generally do not bother with claims under the Takings Clause when the government infringes a patent, because such claims can usually be resolved under § 1498.¹²³

118. Fla. Prepaid Postsecondary Educ. Expense Bd. v. Coll. Sav. Bank, 527 U.S. 627, 642 (1999) (quoting U.S. CONST. amend. V); see also *Consol. Fruit-Jar Co. v. Wright*, 94 U.S. 92, 96 (1877) (“A patent for an invention is as much property as a patent for land. The right rests on the same foundation, and is surrounded and protected by the same sanctions.”).

119. See U.S. CONST. amend. V (“[N]or shall any person . . . be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.”).

120. See Davida H. Isaacs, *Not All Property Is Created Equal: Why Modern Courts Resist Applying the Takings Clause to Patents, and Why They Are Right to Do So*, 15 GEO. MASON L. REV. 1, 36-41 (2007).

121. See 483 U.S. 587, 602-06 (1987).

122. 28 U.S.C. § 1498(a) (2017).

123. See Hannah Brennan et al., *A Prescription for Excessive Drug Pricing: Leveraging Government Patent Use for Health*, 18 YALE J.L. & TECH. 275, 308-13 (2016).

Courts have described § 1498 as providing a cause of action to obtain “compensation for the Government’s unauthorized taking and use” under the doctrine of eminent domain.¹²⁴ Both the Federal Circuit and Court of Claims have occasionally gone further by referring explicitly to the Fifth Amendment when discussing § 1498 claims.¹²⁵

In *Zoltek Corp. v. United States*, however, the Federal Circuit rejected this framing.¹²⁶ There, the patentee alleged that a government contractor had infringed on its carbon fiber methods patent when building fighter jets, and that the federal government was therefore liable under § 1498.¹²⁷ The trial court had found that § 1498(c)—which bars any “claim arising in a foreign country”—prevented Zoltek from making a claim under § 1498(a) because the contractor manufactured the carbon fiber in Japan.¹²⁸ However, the court allowed Zoltek to amend its complaint to allege a Fifth Amendment taking.¹²⁹ The Federal Circuit affirmed the trial court’s ruling with respect to the § 1498 claim but “reverse[d] the trial court’s ruling that Zoltek [could] allege patent infringement as a Fifth Amendment taking.”¹³⁰ The Supreme Court denied certiorari,¹³¹ and though the Federal Circuit later reheard the case en banc and reversed on other grounds,¹³² it left the relevant portion of its original *Zoltek* opinion intact.

The contradiction between the Federal Circuit’s initial holding in *Zoltek* and its previous descriptions of § 1498 is striking, but explainable. In previous cases, statements about eminent domain or the Fifth Amendment had no effect

124. See, e.g., *Motorola, Inc. v. United States*, 729 F.2d 765, 768 (Fed. Cir. 1984); see also *Pitcairn v. United States*, 547 F.2d 1106, 1114 (Ct. Cl. 1977) (en banc) (per curiam) (describing the statute in similar terms); *Decca Ltd. v. United States*, 544 F.2d 1070, 1082 (Ct. Cl. 1976) (per curiam) (same).

125. See, e.g., *Hughes Aircraft Co. v. United States*, 86 F.3d 1566, 1571 (Fed. Cir. 1996) (“The government’s unlicensed use of a patented invention is properly viewed as a taking of property under the Fifth Amendment through the government’s exercise of its power of eminent domain and the patent holder’s remedy for such use is prescribed by 28 U.S.C. § 1498(a).”), *vacated and remanded mem.*, 520 U.S. 1183 (1997); *Leesona Corp. v. United States*, 599 F.2d 958, 964 (Ct. Cl. 1979) (en banc) (“When the government has infringed, it is deemed to have ‘taken’ the patent license under an eminent domain theory, and compensation is the just compensation required by the fifth amendment.”).

126. See 442 F.3d 1345, 1351-52 (Fed. Cir. 2006) (per curiam), *vacated en banc*, 672 F.3d 1309 (Fed. Cir. 2012).

127. See *id.* at 1349.

128. See 28 U.S.C. § 1498(c) (2017); *Zoltek Corp. v. United States*, 58 Fed. Cl. 688, 689-90 (2003).

129. See *Zoltek*, 58 Fed. Cl. at 707.

130. See *Zoltek*, 442 F.3d at 1353.

131. See *Zoltek Corp. v. United States*, 551 U.S. 1113 (2007) (mem.).

132. See *Zoltek Corp. v. United States*, 672 F.3d 1309, 1314-22 (Fed. Cir. 2012) (en banc).

whatsoever on the success or failure of the claims: The § 1498 remedy would be available regardless.¹³³ *Zoltek* was important because the resolution of the takings question was central to the holding.¹³⁴ When it really mattered, the Federal Circuit rejected the Takings Clause interpretation of § 1498, and both the Federal Circuit sitting en banc and the Supreme Court chose not to reverse that holding.

The Supreme Court recently suggested in dicta that patents might be property for purposes of the Takings Clause. In *Horne v. Department of Agriculture*, the Court held that a U.S. Department of Agriculture order requiring raisin producers to “physically set aside [raisins] . . . for the account of the Government” without compensation constituted a taking under the Fifth Amendment.¹³⁵ As the Court noted, “[n]othing in the text or history of the Takings Clause, or our precedents, suggests that the rule is any different when it comes to the appropriation of personal property.”¹³⁶ The Court supported this principle with a quotation from *James v. Campbell*, a century-old case addressing patent infringement: “[A patent] confers upon the patentee an exclusive property in the patented invention which cannot be appropriated or used by the government itself, without just compensation, any more than it can appropriate or use without compensation land which has been patented to a private purchaser.”¹³⁷

Some scholars have argued that this choice of words “left no doubt . . . that patents are subject to the Takings Clause.”¹³⁸ Taken at face value, this assertion seems reasonable: In an opinion holding that personal property is subject to the Takings Clause, the Court cited a patent case as providing historical support for that proposition. The implication is that the Court was agreeing with the language from *James*. Applied in a relevant case, this would likely bring patents under the protection of the Takings Clause.

Nonetheless, the quotation in *Horne* looks a lot like the past descriptions of § 1498 articulated by the Federal Circuit and Court of Claims: Patent infringement is described in terms of eminent domain or takings when that

133. See, e.g., *Hughes Aircraft Co. v. United States*, 86 F.3d 1566, 1571-72 (Fed. Cir. 1996), *vacated and remanded mem.*, 520 U.S. 1183 (1997).

134. This is because compensation under § 1498 was unavailable due to the fact that the infringing product had been manufactured in Japan. See *Zoltek*, 58 Fed. Cl. at 707; see also 28 U.S.C. § 1498(c) (2017) (“The provisions of this section shall not apply to any claim arising in a foreign country.”).

135. See 135 S. Ct. 2419, 2424-25, 2431 (2015).

136. *Id.* at 2426.

137. *Id.* at 2427 (alteration in original) (quoting *James v. Campbell*, 104 U.S. 356, 358 (1882)).

138. Gregory Dolin & Irina D. Manta, *Taking Patents*, 73 WASH. & LEE L. REV. 719, 775 (2016); see also, e.g., Adam Mossoff, *Supreme Court Recognizes That Patents Are Property*, CTR. FOR PROTECTION INTELL. PROP. (June 22, 2015), <https://perma.cc/FL3K-QF9G>.

characterization is irrelevant to the resolution of the case at hand.¹³⁹ The Supreme Court might choose to pursue this line of reasoning when it is necessary for a holding, but it would be premature to assume that the Court will do so.

Courts have also occasionally considered the status of patents in the context of the regulatory takings doctrine. In *Pennsylvania Coal Co. v. Mahon*, the Supreme Court held that government regulation of property can be so restrictive as to be a taking requiring compensation under the Fifth Amendment.¹⁴⁰ In *Penn Central Transportation Co. v. New York City*, the Court identified three key factors relevant to the question whether there has been a regulatory taking: (1) “[t]he economic impact of the regulation on the claimant”; (2) “the extent to which the regulation has interfered with distinct investment-backed expectations”; and (3) “the character of the governmental action,” including an analysis of whether the taking was a “physical invasion by the government.”¹⁴¹

In its 1985 decision in *Patlex Corp. v. Mossinghoff*, the Federal Circuit applied the *Penn Central* regulatory takings test to the retroactive application of a patent reexamination procedure used by the PTO.¹⁴² The patentee argued that a federal statute retroactively subjecting his patent to reexamination violated the Due Process Clause of the Fifth Amendment.¹⁴³ The *Patlex* court eventually upheld the constitutionality of the statute.¹⁴⁴ But in the course of doing so, the court declared that patents “fall squarely within both classical and judicial definitions of protectible property.”¹⁴⁵ The court described its decision in terms of due process, but the *Penn Central* test is an analysis of takings, and thus this case is best understood as the application of takings law to a patent.

It is not clear, however, that *Patlex*’s approach to the subject has stood the test of time. This is the only case in which the Federal Circuit has applied the *Penn Central* test in a patent case.¹⁴⁶ No court has since regarded a patent as property entitled to regulatory takings protection and applied the *Penn Central* test. The handful of regulatory patent taking claims since *Patlex* have all failed,

139. See, e.g., *Hughes Aircraft Co. v. United States*, 86 F.3d 1566, 1571-72 (Fed. Cir. 1996), *vacated and remanded mem.*, 520 U.S. 1183 (1997).

140. See 260 U.S. 393, 415 (1922).

141. 438 U.S. 104, 124 (1978).

142. See 758 F.2d 594, 597-99, 602-03 (Fed. Cir.), *modified*, 771 F.2d 480 (Fed. Cir. 1985).

143. See *id.* at 598-99.

144. See *id.* at 603.

145. *Id.* at 599.

146. See *id.* at 602-03.

some rather spectacularly.¹⁴⁷ Two of these cases involved patentees whose patents expired because they failed to pay maintenance fees.¹⁴⁸ That is, they involved patentees who had no property interests whatsoever. A third was very much like *Patlex*.¹⁴⁹ From any perspective, then, the law is still far from recognizing patents as property subject to the protection of the Takings Clause.

C. Judicial Takings and Patent Law

Any analysis of whether changes in settled patent law might amount to takings must confront a second complication: These would be *judicial* takings, not the typical sort of takings created by executive or legislative action.¹⁵⁰ In *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*, a plurality of the Supreme Court announced that courts could themselves effect takings.¹⁵¹ That is, if a court declared that a previously established property right no longer existed, that would constitute a taking for purposes of the Fifth Amendment.¹⁵² The issue in *Stop the Beach Renourishment* was a question of state law regarding beachfront land rights,¹⁵³ and the decision did not clearly indicate whether its holding could also apply to infringements of property rights under federal law. A portion of Justice Scalia's opinion joined only by a plurality of the Court stated that "the Takings Clause bars the State from taking private property without paying for it, no matter which branch is the instrument of the taking."¹⁵⁴ It is not clear whether his reference to "the State" was to only the fifty state governments or to the government generically (in all of its forms). Nevertheless, at a minimum, the

147. See, e.g., *Joy Techs., Inc. v. Manbeck*, 959 F.2d 226, 228-29 (Fed. Cir. 1992); *Korsinsky v. Godici*, No. 05 Civ. 2791(DLC), 2005 WL 2312886, at *5-6 (S.D.N.Y. Sept. 22, 2005), *aff'd per curiam sub nom. Korsinsky v. Dudas*, 227 F. App'x 891 (Fed. Cir. 2007); *Michels v. United States*, 72 Fed. Cl. 426, 429-31 (2006); *Figueroa v. United States*, 57 Fed. Cl. 488 (2003), *aff'd*, 466 F.3d 1023 (Fed. Cir. 2006).

148. See *Korsinsky*, 2005 WL 2312886, at *5-6; *Michels*, 72 Fed. Cl. at 429-31.

149. See *Joy Techs.*, 959 F.2d at 228-29 (holding that patent reexamination does not constitute an unlawful taking or deprive the patent owner of his right to a jury trial).

150. For the leading article on judicial takings, see Barton H. Thompson, Jr., *Judicial Takings*, 76 VA. L. REV. 1449 (1990).

151. See 560 U.S. 702, 715 (2010) (plurality opinion).

152. See *id.*

153. See *id.* at 707-09 (majority opinion).

154. *Id.* at 715 (plurality opinion).

opinion raises the implication that a federal decision altering patent rights could similarly constitute a taking (if patents are property subject to takings under the Fifth Amendment, of course).¹⁵⁵

However, since *Stop the Beach Renourishment*, no court has held that a judicial decision effected a taking.¹⁵⁶ Courts have described most judicial takings claims as flawed, either because they clearly failed the tests put forward in *Stop the Beach Renourishment* or because they constituted improper collateral attacks before courts lacking jurisdiction.¹⁵⁷ For that matter, while some courts have accepted the framework developed in the *Stop the Beach Renourishment* plurality opinion,¹⁵⁸ others have appeared skeptical that judicial takings are indeed takings at all.¹⁵⁹ Nonetheless, no court has held it impossible for a federal court to effect a taking,¹⁶⁰ and the Court of Federal Claims has suggested it may have jurisdiction over a properly framed judicial takings case.¹⁶¹

All of this is to say that a judicial takings claim based upon a change in the law is highly speculative as a legal matter. This is probably for the good, given the hurdles that applying takings law would impose on courts' ability to

155. Cf. J. Nicholas Bunch, Note, *Takings, Judicial Takings, and Patent Law*, 83 TEX. L. REV. 1747 (2005) (proposing a theory for how judicial takings doctrine might apply to patent law).

156. See *Shinnecock Indian Nation v. United States*, 782 F.3d 1345, 1348 (Fed. Cir. 2015) (noting that the plaintiff “had been unable to cite to any ‘case in which a property owner prevailed on a judicial takings claim’” (quoting *Shinnecock Indian Nation v. United States*, 112 Fed. Cl. 369, 386 (2013), *aff’d in part, vacated in part, and remanded*, 782 F.3d 1345)).

157. See, e.g., *Petro-Hunt, L.L.C. v. United States*, 126 Fed. Cl. 367, 380-81 (2016), *aff’d*, 862 F.3d 1370 (Fed. Cir. 2017), *cert. denied*, 138 S. Ct. 1989 (2018); *Shinnecock Indian Nation*, 112 Fed. Cl. at 383 n.6.

158. See, e.g., *Smith v. United States*, 709 F.3d 1114, 1117 (Fed. Cir. 2013); *Inv’rs Sav. Bank v. Keybank Nat’l Ass’n*, 38 A.3d 638, 643-44 (N.J. Super. Ct. App. Div. 2012).

159. See, e.g., *Shinnecock Indian Nation*, 112 Fed. Cl. at 385.

160. There is also a separate question whether a change in federal law could constitute a judicial taking. Some courts take the position that a judicial decision interpreting a federal law merely indicates what that law has “always” meant. See, e.g., *Rivers v. Roadway Express, Inc.*, 511 U.S. 298, 312-13, 313 n.12 (1994). Under this view, a patent declared invalid under a new judicial decision was “always” invalid, and thus never constituted property protected by the Takings Clause. It remains to be seen whether this view of judicial action will prevail in judicial takings cases, in the event that the doctrine of judicial takings evolves.

161. See *Petro-Hunt*, 126 Fed. Cl. at 382-83; cf. *Boise Cascade Corp. v. United States*, 296 F.3d 1339, 1344 (Fed. Cir. 2002) (holding that the Court of Federal Claims has jurisdiction over takings claims that “do[] not require the trial court to review the district court’s actions”).

improve and update the law. But the possibility nonetheless exists, and it would not be surprising to see takings claims, perhaps unsuccessful ones, brought by aggrieved patent owners in the near future.¹⁶²

* * *

The fact that judicial takings doctrine does not currently apply to patent law is, then, a positive for the patent system, and one that courts should maintain. By imposing high costs on legal change, takings law would unnecessarily stultify the development of patent law. Takings law is also an asymmetric response to a symmetric problem. It would protect patentholders but not parties who relied on the freedom to operate in a technological field where patents were not permitted. Nevertheless, the original problem that motivated the inquiry into takings remains. Without any means of compensating parties whose reliance interests are upset when the law is changed, courts will sometimes harm investment-based expectations to such an extent as to reduce R&D incentives going forward. In other cases, they may refuse to alter the law even when it would be wise to do so. What is needed is some means of slicing this Gordian knot—a mechanism that would free courts to make necessary legal changes without fear of unduly harming existing reliance interests. The next Part discusses a more promising candidate.

IV. Purely Prospective Changes to Patent Law

At its heart, the problem facing the patent system is generated by the fact that legal change is both forward looking and backward looking. Change to patent law affects future patents, which is beneficial—assuming that the legal changes are improvements on the status quo. But change to patent law also affects existing patents, which can be either beneficial—to the extent that it eliminates harmful patents that impede innovation—or harmful—to the extent that it affects reliance interests, destabilizes the law, and thereby diminishes future investment incentives. Recall as well that the costs of legal change will exist even if the legal change itself is a beneficial one.¹⁶³ When judges fear that their decisions might diminish future investment in R&D, they can become understandably reluctant to amend the law.¹⁶⁴ The consequences are deleterious in either direction: either the courts change the law, to the detriment of some existing reliance interests, or they refuse to change the law, to the ongoing detriment of the patent system as a whole.

162. One such claim appears to be percolating, though it pertains to inter partes review procedures, not changes in the law made by the federal courts. See Peter Leung, *Government Aims to Kill Fresh Attack on Patent Challenges*, BLOOMBERG L., (Oct. 5, 2018, 3:05 PM), <https://perma.cc/XVQ5-RQEQ>.

163. See *supra* notes 47-50 and accompanying text.

164. See *supra* Part II.

The solution is to decouple the effects on future patents from the effects on existing patents—to allow courts to make positive changes affecting patents that will be granted in the future without similarly affecting patents that already exist. That is, federal courts should be given the power to make legal decisions that are purely prospective. They should have the ability to issue decisions that only affect patents that are granted *after* the decision, but do not affect patents that existed when the case was decided.

The issue of when legal change should be made retroactive or purely prospective is a general one in law.¹⁶⁵ Yet even beyond its general importance, the issue of retroactivity is particularly pressing for patent law because every change in patent law potentially implicates existing patents (sometimes tens or hundreds of thousands of patents) and thus affects substantial investment-based interests as well. In addition, for reasons that this Part will examine, patent law is a particularly fertile ground for the application of purely prospective lawmaking.

At issue here is not merely the potential for nonretroactive patent decisions, but also the potential for nonretroactive judicial decisions more generally. In theory, statutes and regulations can be made to apply purely retroactively, purely prospectively, or both retroactively and prospectively.¹⁶⁶ Policymakers in the executive and legislative branches are thus frequently faced with the question whether they should “grandfather” existing activities or individuals by exempting them from the new legal regime. Not surprisingly, nonretroactive laws and regulations are ubiquitous.¹⁶⁷ Yet courts issue purely

165. For general discussions of retroactivity across legal fields, see Fisch, *supra* note 47; and Daniel E. Troy, *Toward a Definition and Critique of Retroactivity*, 51 ALA. L. REV. 1329 (2000). For discussions of retroactivity in particular contexts, see Michael J. Graetz, *Legal Transitions: The Case of Retroactivity in Income Tax Revision*, 126 U. PA. L. REV. 47 (1977) (tax); Charles B. Hochman, *The Supreme Court and the Constitutionality of Retroactive Legislation*, 73 HARV. L. REV. 692 (1960) (legislation); and Stephen R. Munzer, *A Theory of Retroactive Legislation*, 61 TEX. L. REV. 425 (1982) (same).

166. See Elmer E. Smead, *The Rule Against Retroactive Legislation: A Basic Principle of Jurisprudence*, 20 MINN. L. REV. 775, 778 (1936) (“[T]his principle in the English common law meant that the courts . . . viewed themselves as bound by the rule of construction that no law should be given an operation from a time prior to its enactment unless Parliament had expressly provided that it should have such an effect or unless the words of the Act could have no meaning except by application to this past time.” (footnote omitted)); Troy, *supra* note 165, at 1349 (“Unless a statute expressly states an intention to apply to pre-enactment transactions, court[s] traditionally apply the ‘presumption of prospectivity.’”).

167. See generally RICHARD L. REVESZ & JACK LIENKE, STRUGGLING FOR AIR: POWER PLANTS AND THE “WAR ON COAL” 63-74 (2016) (discussing grandfathering in environmental law); Jonathan Remy Nash & Richard L. Revesz, *Grandfathering and Environmental Regulation: The Law and Economics of New Source Review*, 101 NW. U. L. REV. 1677 (2007) (detailing grandfathering within the administrative state); Steven Shavell, *On Optimal Legal Change, Past Behavior, and Grandfathering*, 37 J. LEGAL STUD. 37 (2008) (discussing the economic rationales for grandfathering).

prospective legal rulings only rarely, despite indications from the Supreme Court that they are permitted to do so.¹⁶⁸ It is time for patent courts to avail themselves of this opportunity. Nonretroactive lawmaking is already pervasive in environmental law, land use and zoning, and a variety of other areas of law that are governed primarily by statute and regulation.¹⁶⁹ There is no reason to deprive patent policymakers of the tool of prospective lawmaking just because those policymakers happen to be judges, rather than legislators or executive officials.

A. The Costs and Benefits of Nonretroactive Legal Change

The decision to alter a legal rule—whether by legislation, regulation, or judicial decision—is necessarily accompanied by a decision as to whether the new rule will affect existing actors and prior conduct, future actors and future conduct, or both.¹⁷⁰ Put another way, the issue that the legal decisionmaker must typically face is whether to “grandfather” some preexisting conduct or parties, exempting them from the new legal rule, or to subject everyone and everything to the new legal regime.¹⁷¹ Few legal rules are deliberately made retrospective only, though some turn out to be largely retrospective in effect.¹⁷² In most cases, then, the choice is between purely prospective legal rules and rules that are both prospective and retrospective.

To concretize the problem, imagine that a policymaker is about to implement a new legal rule requiring all factories to install a newer, more expensive type of pollution-reducing scrubber on their smokestacks.¹⁷³ The policymaker could be a legislature, an administrative agency, or a court—for the moment, the point is general to all of these institutional actors. The new rule will apply to every new factory constructed in the future. The question is whether, and to what extent, it should also apply to factories that already exist,

168. See *infra* Part IV.D.

169. See Nash & Revesz, *supra* note 167, at 1696-705; Shavell, *supra* note 167, at 69-70.

170. See Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509, 511-13 (1986).

171. See Kyle D. Logue, *Tax Transitions, Opportunistic Retroactivity, and the Benefits of Government Precommitment*, 94 MICH. L. REV. 1129, 1138-43 (1996) (promoting transition relief for some changes in the law); Jonathan Masur, *Judicial Deference and the Credibility of Agency Commitments*, 60 VAND. L. REV. 1021, 1025, 1041-47 (2007) (explaining that grandfathering may be appropriate in order to induce actors to undertake voluntary, socially desirable projects); Jonathan Remy Nash, *Allocation and Uncertainty: Strategic Responses to Environmental Grandfathering*, 36 ECOLOGY L.Q. 809, 830, 842 (2009) (arguing for grandfathering from the perspective of governmental legitimacy).

172. Cf. Schwartz, *supra* note 67, at 1550-53 (explaining that many patent decisions turn out to have only retroactive effect).

173. See Shavell, *supra* note 167, at 44-50 (discussing and analyzing similar problems and questions related to legal change).

or, conversely, whether some existing factories should be grandfathered and allowed to continue using a less expensive and less effective scrubber.

The first and most obvious advantage of making the new rule fully retroactive is that it is likely superior to the old rule.¹⁷⁴ (If not, it would be odd to adopt it.) In this example, perhaps the new scrubbers eliminate more pollution than the older models. Thus, the more factories that are forced to switch to the new scrubbers, the greater the environmental benefits. Relatedly, another reason to make the rule change fully retroactive is to encourage regulated parties to anticipate the legal change.¹⁷⁵ Suppose that one year before the rule change, a firm is constructing a new factory. The new scrubbers exist, but they are not yet mandatory. It would be socially optimal if the firm installed the new scrubbers rather than the old, but the new scrubbers might be more expensive. If policymakers generally do not grandfather existing factories, the firm may anticipate that it will be forced to switch to the new scrubbers at some point in the near future.¹⁷⁶ It may therefore choose to install them from the outset. But if the firm believed that its factory may be exempted from the new rule, it might instead install the old scrubbers, thus producing greater pollution and possibly having to bear the expense of installing the new scrubbers a few years later. Lastly, refusing to grandfather existing uses will reduce or eliminate lobbying and rent-seeking activity.¹⁷⁷ If the policymaker is willing to make exceptions to the new rule, existing factories will lobby to obtain those potentially valuable exceptions. This activity is socially wasteful. But if there is no possibility that a firm will obtain an exception, there is no reason to lobby.

On the other hand, though, there are often compelling reasons militating in favor of making a legal rule prospective only, or at least in favor of grandfathering certain existing activities. First, if every new legal rule is applied both prospectively and retroactively, regulated private parties will not be able to rely on the continued existence of any particular legal rule. They will be reluctant to make new investments that might be derailed or rendered worthless by a change in the law. Here, for instance, firms might even resist

174. See Kaplow, *supra* note 170, at 551-52 (describing the virtues of legal transitions and reasons for expediting them).

175. See Saul Levmore, *Changes, Anticipations, and Reparations*, 99 COLUM. L. REV. 1657, 1658-59 (1999) (suggesting that legal change should be designed to encourage anticipation).

176. See *id.* at 1673 (describing the public choice dynamics of legal change and firms' behavior).

177. *Cf. id.* at 1658-59 (analyzing the effects of decisions not to grandfather existing uses on political and interest group behavior).

constructing factories with new scrubbers, fearful that they might soon be required to install newer and more expensive scrubbers. This is the rationale that applies to patent law with greatest force, for the reasons detailed in Part I above.

Second, the new rule may be superior with respect to new activities but not existing ones.¹⁷⁸ Imagine that the old scrubbers cost \$1,000 to install and eliminate \$2,000 worth of pollution, and that the new scrubbers cost \$1,500 to install and eliminate \$3,000 worth of pollution. It would be socially optimal for a new factory to install a new scrubber, which would generate a net benefit of \$1,500 (\$3,000 – \$1,500). But consider a factory that already has an old scrubber installed. The marginal increase in benefits from switching to a new scrubber is just \$1,000 (\$3,000 – \$2,000), but the new scrubber would cost \$1,500. Forcing firms to retrofit and install the new scrubbers is thus inefficient. This may be true for patent law as well. For instance, a judicial decision that curtailed patenting in some technological field might lead to greater future innovation in that field. But it also might harm innovation by existing firms, which would cease ongoing R&D if their patents, current and future, instantly became unenforceable.¹⁷⁹ The optimal balance might be to free firms from the constraints imposed by patents in the future while allowing existing patents to remain in force.

Third, insisting that a new legal rule be both prospective and retroactive may make it more difficult to enact legal change in the first instance. In this example, the scrubbers are bad for the firms that must install and pay for them but good for society as a whole, which benefits from the reduction in pollution. If the policymaker will not grandfather existing uses, the new legal rule will be opposed by every firm that owns or contemplates constructing an affected factory. The policymaker will be forced to overcome this united resistance to enact the new rule.¹⁸⁰ However, if the policymaker grandfathers some (or all) existing factories, then the owners of those factories will potentially join in supporting the new legal rule. Thus, the policymaker can use the possibility of nonretroactive lawmaking to pursue a “divide and conquer” strategy that makes enactment of the rule more likely in the first instance.¹⁸¹ This is the flip

178. See Shavell, *supra* note 167, at 47-50 (analyzing the economics of legal rules as applied to new and existing uses); see also Masur & Nash, *supra* note 45, at 396-405 (discussing the possibility of transition relief to address inefficiencies that arise when new rules are applied to existing activity).

179. See Sichelman, *supra* note 35, at 354-56 (analyzing firms' incentives to turn existing R&D into marketable consumer products).

180. See Levmore, *supra* note 175, at 1665 (“After all, if new losers simply go uncompensated for the burdens new law imposes on them, then they can be expected to work to delay the implementation of proposed changes.”).

181. See generally Eric A. Posner et al., *Divide and Conquer*, 2 J. LEGAL ANALYSIS 417 (2010).

side of the point about avoiding lobbying and rent seeking, described above. Rent seeking is usually wasteful, but in some cases, it may be necessary to facilitate legal change.

The possibility of rent seeking and the prospect that grandfathering might facilitate legal change do not apply with the same force to judicially created legal rules, which are the focus of this Article, as they do to legislative or agency lawmaking. But they are not entirely irrelevant either. There is evidence that courts are influenced by amici, particularly amici who credibly argue that a change in a legal rule will do violence to their businesses.¹⁸² It is not far-fetched to imagine that news stories or public discourse can similarly affect judicial decisionmaking. If this is the case, judicial decisionmaking may turn out to reflect interest group politics, at least to some degree.

Regardless, the other arguments for and against nonretroactive lawmaking and grandfathering apply just as strongly to judicial decisions as they do to legislation and regulation. The real question is not the institutional actor but the type of legal question. As the foregoing Parts demonstrated, judicial decisions frequently implicate reliance interests and ongoing investment in existing assets. Of course, this is not to say that legal rules should never be made retroactive—to the contrary, most rules likely should be fully retroactive and fully prospective, particularly if the quality of legal rules improves over time. Rather, the point is that there will be some legal rules that should be implemented only prospectively, and some reliance interests that should be protected with grandfathering. Legal policymakers, including courts, should have discretion to make rules nonretroactive when it seems appropriate to do so. Accordingly, it is not surprising that many laws and regulations include some element of pure prospectivity¹⁸³—that is to say, some element of grandfathering—though others are fully retroactive.¹⁸⁴

B. Nonretroactive Changes in Patent Law

These arguments for nonretroactivity apply, *mutatis mutandis*, to patent law as well. When judges decide patent cases, they should have the option of offering rulings that are purely prospective. That is, they should have the authority to grandfather preexisting patents, locking them into the prior legal regime that existed before the case at hand was decided. Nonretroactive judicial decisions allow for prospective changes in the law without potentially upsetting reliance interests or diminishing incentives to invest in R&D.

182. See Chien, *supra* note 105, at 400-02.

183. See Shavell, *supra* note 167, at 74 & n.52 (describing some examples of such legal rules).

184. See Levmore, *supra* note 175, at 1671, 1679, 1690-93 (identifying examples of retroactive lawmaking and proxies thereof, ranging from tobacco company liability to criminal law to reparations for past injustices); see also Troy, *supra* note 165, at 1334-37.

Nonretroactivity allows judges to change the law without generating the negative consequences that animate takings law and the principle of stare decisis.

Nonretroactive judicial decisions involve the same advantages and disadvantages that typically accompany nonretroactivity. The knowledge that courts can protect existing patent rights will increase incentives for firms to continue investing in R&D despite the uncertainty surrounding potential legal changes.¹⁸⁵ A nonretroactive decision, by not impinging on existing patent rights, does not upset existing reliance interests and thus does not threaten to diminish investment incentives.¹⁸⁶ On the other hand, the old rule may be inferior to the new rule, and the possibility of being grandfathered may discourage patent owners from adapting to the new regime ahead of time.¹⁸⁷ Lastly, while the possibility of grandfathering may induce firms to spend resources on “lobbying” the courts for exemptions—through amicus briefs and the like—it will also allow judges to amend the law prospectively despite opposition in circumstances when the courts would otherwise have stayed their hand.

Consider, for example, the rules governing the patentability of business methods.¹⁸⁸ In 1998, at the very beginning of the internet era, the Federal Circuit held that business methods could be patented.¹⁸⁹ Within just a few years, however, it became clear that the Federal Circuit’s decision was misguided.¹⁹⁰ As the internet economy exploded, firms began to exploit the Federal Circuit’s ruling to obtain patents that covered standard business practices.¹⁹¹ Patent trolls began to purchase these types of patents in large

185. See Daniel R. Cahoy, *Changing the Rules in the Middle of the Game: How the Prospective Application of Judicial Decisions Related to Intellectual Property Can Promote Economic Efficiency*, 41 AM. BUS. L.J. 1, 37 (2003) (“In view of the economic effects of judicial retroactivity on intellectual property interests, it seems that a compelling case can be presented for [nonretroactivity].”); *supra* notes 52-58 and accompanying text.

186. See Shavell, *supra* note 167, at 68-69.

187. See *supra* text accompanying notes 174-77.

188. The PTO has defined a business method patent as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.” 37 C.F.R. § 42.301(a) (2018).

189. See *State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1375 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008), *aff’d sub nom. Bilski v. Kappos*, 561 U.S. 593 (2010).

190. See Michael J. Meurer, *Business Method Patents and Patent Floods*, 8 WASH. U. J.L. & POL’Y 309, 310-14 (2002) (describing the problems caused by the Federal Circuit’s decision in *State Street* and arguing that it should be reversed).

191. See *id.* at 319-20.

numbers and use them to extract rents from productive firms.¹⁹² Nonetheless, the Federal Circuit never revisited its ruling—possibly for fear of upsetting reliance interests—and the Supreme Court did not get around to addressing the issue until sixteen years had passed.¹⁹³ If the Federal Circuit had realized its ability to change the law prospectively but not retroactively, and thus protect existing interests, a solution to the problem of business method patents might have come much sooner.

Yet it is not the case that patent decisions should *never* be retroactive, nor is it the case that they should *always* be retroactive. A corner solution is not called for. In deciding whether to make their decisions retroactive, judges should consider a range of factors. First, and most obviously, they should consider how far superior the new rule is to the old one. The greater the distance in quality between new rule and old, the stronger the case for retroactivity.

Second, they should consider the extent to which the putative change in patent law will discourage future investment. This inquiry can be decomposed into several component parts. One is the degree to which the new rule represents a substantial and unexpected change in the law, as opposed to an incremental or predictable change in light of prior decisions. The more unexpected a legal change, the more that making the change retroactive will upset existing reliance interests and affect ongoing R&D decisions.¹⁹⁴

Relatedly, courts should consider the degree to which firms' reliance interests will be harmed if a change in the law invalidates existing patents or makes it more difficult to obtain future patents. The more that a given decision harms existing reliance interests, the more that firms are likely to fear decisions that might harm future interests.¹⁹⁵ One indicator of potential damage to reliance interests is whether private firms have made field- or technology-specific investments. The more they have done so, and the more difficult it is to reorient those investments in directions that have not been

192. See John M. Golden, Commentary, *"Patent Trolls" and Patent Remedies*, 85 TEX. L. REV. 2111, 2112-13 (2007) (describing the business model of patent trolls); David Orozco, *Administrative Patent Levers*, 117 PENN ST. L. REV. 1, 10 (2012) (noting that patent trolls "aggressively wield business method patents").

193. The Supreme Court held nearly all business methods to be unpatentable in *Alice Corp. v. CLS Bank International*. See 134 S. Ct. 2347, 2360 (2014). The Court had taken a more tentative step in the same direction four years earlier in *Bilski v. Kappos*. See 561 U.S. at 612-13.

194. See Cahoy, *supra* note 185, at 18 & nn.65-66; Fisch, *supra* note 47, at 1092-93.

195. See Cass R. Sunstein, Essay, *What's Available?: Social Influences and Behavioral Economics*, 97 NW. U. L. REV. 1295, 1297 (2003) ("Under the availability heuristic, people assess probabilities by asking whether examples readily come to mind.").

affected by the legal change, the greater the damage to their reliance interests. If firms have invested heavily in producing an innovation backed by a particular type of patent, that militates against retroactively holding those types of patents invalid.

At the same time, the preceding analysis suggests that courts should approach retroactivity in an asymmetric fashion. While there is often a strong argument in favor of issuing a retroactive decision that invalidates or weakens patents, decisions that expand or strengthen patent rights should very rarely be made retroactive. First, it is very unlikely that a firm would make an investment in reliance on a court changing the law in that firm's favor in the future, particularly given the relatively short time it can take to obtain a patent versus the longer time it can take to bring a product to market.¹⁹⁶ Betting on a change in the law of patentability, for example, makes less sense if the change will take place only after the firm has obtained its patents under the old legal regime.

Second, if firms are relying on anything, they are relying on existing law, not some hypothetical, future improved state of the law. Retroactively granting firms more powerful patents than they were expecting is unlikely to generate any additional R&D. After all, the firm was willing to make the original investment in innovating without any guarantee of patent protection. Rather, a retroactive change that strengthens patent rights would more likely constitute an unnecessary windfall to existing patentholders. And retroactively granting firms broader or more powerful patents can frustrate the reliance interests of innovators who have expended firm resources on designing around claimed inventions under the belief that their activity was noninfringing.¹⁹⁷

Making these determinations may seem like quite a lot to ask of judges—especially patent judges, who often make a great show of the fact that they are merely interpreting the law and not enacting economic policy.¹⁹⁸ Nonetheless,

196. This is particularly the case in the pharmaceutical industry, and Congress's observation of this difficulty resulted in the Hatch-Waxman Act, which granted patent term extensions to innovator pharmaceutical companies. *See* Drug Price Competition and Patent Term Restoration Act of 1984, Pub. L. No. 98-417, sec. 201(a), § 156, 98 Stat. 1585, 1598-602 (codified as amended at 35 U.S.C. § 156 (2017)); *Warner-Lambert Co. v. Apotex Corp.*, 316 F.3d 1348, 1357 (Fed. Cir. 2003) ("Since the [Food and Drug Administration] generally took much longer to approve a[] [new drug application] than the United States Patent and Trademark Office took to grant a patent, a manufacturer's patent term was substantially eroded by the time the patentee was able to derive any profit from the invention. . . . The Hatch-Waxman Act intended to . . . restore to innovators patent time lost during testing and regulatory approval. . . .").

197. *See supra* notes 55-58 and accompanying text; *supra* notes 111-13 and accompanying text.

198. *See, e.g.,* *Diamond v. Chakrabarty*, 447 U.S. 303, 317 (1980) ("Whatever their validity, the contentions now pressed on us should be addressed to the political branches of the Government, the Congress and the Executive, and not to the courts.").

it is clear that patent judges are *already* considering such factors when they make decisions. Indeed, such considerations are part of the everyday process of judging: Every time the Federal Circuit considers whether to overrule a precedent or to adhere to stare decisis, it is weighing reliance interests—the principle underlying stare decisis—against the benefits of switching to a new rule.

In fact, it is clear that Federal Circuit judges are consciously evaluating the effects of their decisions on reliance interests and investment—they are explicit in saying so.¹⁹⁹ There have been multiple decisions in which Federal Circuit judges have explained that existing interests compel an outcome contrary to the one they might have reached had they been writing on a blank slate.²⁰⁰ None of this is to say that judges are necessarily adept at undertaking these types of inquiries; they may lack the necessary institutional capacity for any number of reasons.²⁰¹ But they are already engaged in this enterprise, and indeed, because of stare decisis principles, doing so is part of the normal process of judging. So long as courts are going to weigh these factors, it makes sense for them to do it systematically and with purpose. It also makes sense for this aspect of judicial decisionmaking to be explicit in courts' opinions, so that it can be reviewed and evaluated on appeal.

In addition, the need for judges to have the option of rendering nonretroactive decisions is a function of the mechanisms by which substantive patent law is made. Many other areas of federal law—environmental law, securities law, and so forth—are governed substantially by statute and regulation.²⁰² Purely prospective lawmaking is a well-worn tool in the statutory and regulatory toolboxes, and one that Congress and administrative agencies use frequently.²⁰³ Patent law is one of the few areas of federal law where most of

199. See, e.g., *Ass'n for Molecular Pathology v. U.S. Patent & Trademark Office*, 689 F.3d 1303, 1343 (Fed. Cir. 2012) (Moore, J., concurring in part), *aff'd in part, rev'd in part sub nom.* *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576 (2013).

200. See *supra* text accompanying notes 81-82.

201. See Masur, *Regulating Patents*, *supra* note 17, at 278-79 (arguing that administrative agencies are better equipped than judges to regulate patent law).

202. See *id.* (contrasting patent law with these other areas of law).

203. See generally, e.g., Nash & Revesz, *supra* note 167 (discussing the widespread grandfathering in Clean Air Act regulations).

the substantive action takes place in the courts.²⁰⁴ Patent law will be artificially hamstrung if the judges who craft it are not permitted to use the tool of purely prospective lawmaking.²⁰⁵

In fact, when Congress amends the same rules of patent law that are frequently the subject matter of judicial decisions, it will sometimes elect to make the new rule prospective only, in a fashion heretofore considered unavailable to courts. For instance, the 2011 America Invents Act dramatically changed the rules governing priority in patent practice, moving to a “first to file” system.²⁰⁶ But those changes were purely prospective: They applied only to patents filed eighteen months after the enactment of the law.²⁰⁷ Meanwhile, the courts regularly alter the rules governing novelty and patentability without discussing the possibility that the new rules should be prospective only.²⁰⁸ Similarly, in 2013, the Australian legislature passed a law altering the rules governing obviousness, but it provided that the change would apply purely prospectively.²⁰⁹ By contrast, when the U.S. Supreme Court made a similar change in 2007, that decision was understood to be fully retroactive, and the Court offered no discussion of the question.²¹⁰

At the same time, it is important to note that even if a court decides to render a judgment nonretroactive, this will not necessarily protect all of the reliance interests involved. For instance, a firm might invest billions of dollars in R&D for a single type of invention, believing that it will be able to obtain

204. See Masur, *Regulating Patents*, *supra* note 17, at 304 (noting that the courts are “firmly ensconced as the expositors of patent law”); see also *id.* at 304-25 (arguing that the status quo should be altered to provide regulatory agencies with more authority over patent law).

205. To be sure, judges may not be as adept at utilizing this tool as are legislatures and agencies. See Masur, *Regulating Patents*, *supra* note 17, at 278-82; *supra* text accompanying notes 166-67. But that is not a reason to deny it to them entirely and to thereby restrict the development of patent law.

206. See Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 3(b)(1), § 102, 125 Stat. 284, 285-87 (2011) (codified as amended at 35 U.S.C. § 102 (2017)).

207. See *id.* § 3(n)(1), 125 Stat. at 293.

208. See, e.g., *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 64-68 (1998) (redefining what it means for an invention to be “on sale”); *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1378-79 (Fed. Cir. 2003) (deciding, as a matter of first impression, that the prior art need not disclose a chemical in order for that chemical to be inherently present in the prior art).

209. See *Intellectual Property Laws Amendment (Raising the Bar) Act 2012* (Cth) s 2 (Austl.); *id.* s 3 sch 1 pts 1, 3; see also Mark Summerfield, *Australia’s Four Laws of Inventive Step*, PATENTOLOGY (May 6, 2013, 1:25 AM), <https://perma.cc/3DRR-UPS8>.

210. See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407, 415-16 (2007) (rejecting the lower court’s “rigid” application of the “teaching, suggestion, and motivation test”); see also, e.g., *In re Gleizer*, 356 F. App’x 415, 421 (Fed. Cir. 2009) (holding that the *KSR* decision is to be given “full retroactive effect” (quoting *Harper v. Va. Dep’t of Taxation*, 509 U.S. 86, 97 (1993))).

patents related to this invention for decades to come. A continuing stream of patent-based income may be necessary to justify the R&D costs and permit the firm to recoup its investment.²¹¹ Grandfathering existing patents will be only a partial solution. Equivalently, a firm might have invested billions of dollars in R&D, believing that patents in the field are unavailable and that it therefore does not risk being excluded by its competitors.²¹² If the rules change, allowing such patents only prospectively may not be enough to protect the firm's investment. But in either case, nonretroactivity will be at least a partial solution, and one preferable to a fully retroactive judicial decision.

There are also important connections between takings law and retroactivity. By protecting existing rights, purely prospective lawmaking acts as a substitute for takings law. It accomplishes the same end—insuring valuable investment against legal change²¹³—without the financial costs and negative incentive effects that accompany takings.²¹⁴ In addition, while patents are not currently viewed as property that can be judicially taken, that may not always be the case.²¹⁵ This would be normatively undesirable for all of the reasons described above.²¹⁶ But if the law were to evolve in this direction, nonretroactive judicial decisions could provide an antidote. A new legal rule that does not apply retroactively to a certain set of existing property rights does not constitute a taking of those rights. Judges could thus remain free to update the law, purely prospectively, without having to worry that their decisions will run afoul of the Takings Clause or impose large costs on the federal fisc.

Finally, although patents are functionally similar to other property rights in most respects, they are distinct in one critical regard: Patents expire, and they do so in a relatively short period of time.²¹⁷ Expiration changes the calculus of the costs and benefits of retroactivity, and makes patent law especially conducive to grandfathering.

Suppose that a policymaker exempts a factory from installing a new type of scrubber,²¹⁸ allowing that factory to continue polluting at the rate allowed under the old legal rule. This involves some amount of social harm:

211. See Sichelman, *supra* note 35, at 360-61 (describing firms' business plans and the ways in which patents are incorporated).

212. See generally KAL RAUSTIALA & CHRISTOPHER SPRIGMAN, *THE KNOCKOFF ECONOMY: HOW IMITATION SPARKS INNOVATION* (2012) (describing many fields in which firms rely upon the ability to operate free of intellectual property restrictions).

213. See *supra* Part IV.A.

214. See *supra* Part III.A.

215. See *supra* Parts III.B-C.

216. See *supra* Part III.A.

217. See 35 U.S.C. § 154(a)(2) (2017) (setting the patent term at twenty years from the date of filing).

218. See *supra* Part IV.A.

The factory is producing more pollution than is socially optimal given the availability of existing technology. The continued operation of this factory with the old scrubber is a necessary evil, tolerated either because the alternative would be even more wasteful or because policymakers wish to encourage ongoing investment in the factory's underlying production.²¹⁹

The same is true for patents. Suppose a court decides that a particular type of invention should not constitute patentable subject matter going forward²²⁰—perhaps because patents on this type of invention tend to hinder innovation more than they further it.²²¹ It would be tempting for the court to invalidate all of the existing patents of this type. After all, the invention has already occurred, and now the patents are doing more harm than good.²²² But in some cases it may be necessary to preserve the existing patents. Invalidating them might destroy incentives to commercialize the underlying inventions, or harm investment incentives more generally.²²³ These are the factors a court must weigh: the ongoing harm from grandfathering a suboptimal patent, on the one hand, and the benefits of encouraging further investment, on the other. The court knows, however, that the harm from grandfathering existing patents will not last forever. Unlike a factory, which might continue to spew excessive levels of pollution for decades, the suboptimal patents will expire twenty years from the date of filing, which in most cases is roughly eighteen years from when they are granted.²²⁴ This means that even if a court mistakenly grandfathers some patents whose existence is suboptimal, the harm is limited. Those patents will disappear; they will not impose harm indefinitely.

Indeed, patents are unusual among legal instruments in this respect. Real and chattel property can exist in perpetuity,²²⁵ and thus socially suboptimal

219. See Shavell, *supra* note 167, at 51-53.

220. *Cf., e.g., Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355-60 (2014) (invalidating patents that do not contain an “inventive concept” separate from any abstract idea (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72 (2012))).

221. See *id.* at 2354 (“[M]onopolization of [abstract ideas] through the grant of a patent might tend to impede innovation more than it would tend to promote it, thereby thwarting the primary object of the patent laws.” (first alteration in original) (quoting *Mayo*, 566 U.S. at 71)).

222. Indeed, any given patent could be invalidated on these grounds.

223. See Sichelman, *supra* note 35, at 360-61 (describing the incentives necessary to promote not just development but also commercialization of inventions).

224. A patent is valid for twenty years from the date of filing, see 35 U.S.C. § 154(a)(2) (2017), and the PTO takes twenty-one months on average to examine a patent once it has been granted. See Masur, *supra* note 108, at 1732 n.149. Subtracting twenty-one months from the twenty-year life span of the patent yields eighteen years and three months.

225. See A. Samuel Oddi, *TRIPS—Natural Rights and a “Polite Form of Economic Imperialism,”* 29 VAND. J. TRANSNAT’L L. 415, 430 (1996) (“Tangible property does not expire, although it may be expended.”).

uses of that property might endure for decades or even centuries. Copyrights have finite terms, but those terms are much longer than patent terms and are regularly extended.²²⁶ Patents, on the other hand, are one of the few legal instruments that contain an inherent check on the amount of social harm that can accrue if they are exempted from changes in the law. For this reason, patent law is an especially good context for nonretroactive lawmaking.

C. The Mechanics of Retroactive and Prospective Lawmaking

We come finally to the question of how, in practical terms, purely prospective judicial decisionmaking would work. Suppose that a patent defendant argues that the patent asserted against it in a given case is invalid. Once the court has decided whether or not the patent is invalid, how should it go about determining whether that decision applies retroactively or only prospectively, or even to the case at bar?

1. From habeas to patent law

In implementing purely prospective patent law, courts need not worry about reinventing the wheel. There is a model that patent courts could borrow, found in the law of federal habeas corpus. Under the doctrine announced by a plurality of the U.S. Supreme Court in *Teague v. Lane*²²⁷ and subsequently codified by AEDPA,²²⁸ a “new rule” of constitutional criminal procedure²²⁹ does not apply to criminal convictions that have already been finalized on direct review unless it falls within a recognized exception.²³⁰ This means that

226. See *Eldred v. Ashcroft*, 537 U.S. 186, 193-94 (2003) (observing that most copyrights “run from creation until 70 years after the author’s death” and listing previous copyright term extensions approved by Congress); see also 17 U.S.C. § 302(a) (2017).

227. 489 U.S. 288 (1989).

228. See 28 U.S.C. § 2254(d)(1) (2017) (providing that habeas relief is only available when a state court decision “was contrary to, or involved an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States” (emphasis added)); see also Antiterrorism and Effective Death Penalty Act of 1996, Pub. L. No. 104-132, § 104, 110 Stat. 1214, 1218-19 (codified as amended at 28 U.S.C. § 2254).

229. By this we mean the doctrines related to the Fourth, Fifth, Sixth, Eighth, and Fourteenth Amendments to the U.S. Constitution. See, e.g., William J. Stuntz, *The Uneasy Relationship Between Criminal Procedure and Criminal Justice*, 107 YALE L.J. 1, 28, 43 (1997) (explaining this categorization).

230. See *Williams v. Taylor*, 529 U.S. 362, 379-80 (2000) (opinion of Stevens, J.) (explaining that AEDPA codified *Teague*’s general bar on retroactivity).

To be clear, we are not necessarily endorsing any aspect of the law of habeas as applied to criminal convictions, or arguing that *Teague* was rightly decided. We offer habeas as a model for how courts might treat patent cases, and as a demonstration that the courts are already capable of making the types of decisions that such an approach would require.

if a prisoner challenges his conviction with a habeas corpus petition, he cannot take advantage of any new rule handed down since his conviction became final (that is, when he exhausted his direct appeals). The upshot is that courts' criminal procedure decisions are quasi-prospective—they apply to anyone whose case is still pending on direct review, but not to anyone whose conviction is already final but who is still pursuing postconviction relief.

The mechanics of postconviction review, at a high level, are straightforward. The Supreme Court, hearing a criminal case on direct review, issues a decision on an issue of constitutional criminal procedure. A subsequent court, reviewing a similar issue in the context of a habeas petition, will then decide whether the Supreme Court's ruling applies retroactively to cases on habeas review.²³¹ If the subsequent court decides that the Supreme Court has enacted a "new rule," that new rule will not apply to convictions that are challenged through habeas (again, unless it falls within a recognized exception).²³² Habeas cases are adjudicated by the federal district courts and then subsequently by the twelve regional circuits.²³³ Accordingly, the same district courts that handle patent cases, as well as every court of appeals *save the Federal Circuit*, have been implementing this type of procedure in the thirty years since *Teague* was decided.

231. See, e.g., *Tyler v. Cain*, 533 U.S. 656, 658-69 (2001) ("Under *Cage v. Louisiana*, a jury instruction is unconstitutional if there is a reasonable likelihood that the jury understood the instruction to allow conviction without proof beyond a reasonable doubt. In this case, we must decide whether this rule was 'made retroactive to cases on collateral review by the Supreme Court.'" (footnote omitted) (citation omitted) (quoting 28 U.S.C. § 2244(b)(2)(A) (1999)) (citing *Cage v. Louisiana*, 498 U.S. 39 (1990) (per curiam), *abrogated by Estelle v. McGuire*, 502 U.S. 62 (1991))).

232. For instance, the Supreme Court in *Ring v. Arizona* held that the Sixth Amendment requires that all aggravating facts making a defendant eligible for the death penalty be found by a jury. See 536 U.S. 584, 597, 609 (2002). The Court then later held that the holding of *Ring* was a new rule and thus did not apply retroactively on habeas review. See *Schriro v. Summerlin*, 542 U.S. 348, 358 (2004); see also, e.g., *Tyler*, 533 U.S. at 658-59 (holding that the constitutional ruling about jury instructions on reasonable doubt announced in *Cage v. Louisiana* did not apply retroactively); *Caspari v. Bohlen*, 510 U.S. 383, 388, 396-97 (1994) (same for the double jeopardy ruling in *Bullington v. Missouri*, 451 U.S. 430 (1981)); *Sawyer v. Smith*, 497 U.S. 227, 229 (1990) (same for the capital sentencing ruling in *Caldwell v. Mississippi*, 472 U.S. 320 (1985)).

The two recognized exceptions to the *Teague* bar are "new substantive rules of constitutional law," such as "rules forbidding criminal punishment of certain primary conduct," as well as "rules prohibiting a certain category of punishment for a class of defendants because of their status or offense," *Montgomery v. Louisiana*, 136 S. Ct. 718, 728 (2016) (quoting *Penry v. Lynaugh*, 492 U.S. 302, 330 (1989), *abrogated in other part by Atkins v. Virginia*, 536 U.S. 304 (2002)), and "new "watershed rules of criminal procedure" implicating the fundamental fairness and accuracy of the criminal proceeding," *id.* (quoting *Schriro v. Summerlin*, 542 U.S. 348, 352 (2004)).

233. See 28 U.S.C. §§ 2241(a), 2253(a) (2017).

Patent courts should adopt a similar procedure. A court that decides a patent case should first determine whether it has in fact changed the law—whether it has created a “new rule” or merely applied an existing one. This will of course be easier in some cases and more difficult in others. But it is not an unfamiliar task for judges. Even patent courts must frequently decide whether a case created a new rule of law in order to adjudicate collateral questions such as whether issue preclusion applies,²³⁴ whether a party may amend its pleadings,²³⁵ or whether to award attorneys’ fees.²³⁶

If the rule is not new, it will apply in every case; if the rule is new, the court must decide whether it should be applied retroactively or purely prospectively, following the considerations related to reliance interests and social costs outlined above.

As a practical matter, this means that courts will likely be biased toward holding that their rules are not new. Doing so will simplify their decisionmaking and reduce their workload.²³⁷ In addition, judges tend to insist that they are not making new rules, most likely for reasons of institutional perception: Legislatures, not courts, are supposed to make new law.²³⁸ Accordingly, the likely default option will be to treat a judicial decision as merely applying an existing rule, and the majority of cases will probably be categorized accordingly.

234. See, e.g., *Voter Verified, Inc. v. Election Sys. & Software LLC*, 887 F.3d 1376, 1381-82 (Fed. Cir. 2018) (holding that the “change of law” exception to the application of issue preclusion did not apply), *cert. denied*, No. 18-549, 2019 WL 113159 (U.S. Jan. 7, 2019).

235. See, e.g., *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1321-22 (Fed. Cir. 2016) (holding that *Alice Corp. v. CLS Bank International* was a sufficient change in the law to provide “good cause” under the local rules for the patent infringement defendant to amend its invalidity contentions); see also *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014).

236. See, e.g., *Inventor Holdings, LLC v. Bed Bath & Beyond, Inc.*, 876 F.3d 1372, 1377-80 (Fed. Cir. 2017) (affirming an award of attorneys’ fees where the defendant argued that the plaintiff should have given up prosecution of the case after *Alice* was decided because the legal landscape had changed). That is not to say that courts will not sometimes try to duck the question whether a particular decision created a new rule. In *Encyclopaedia Britannica, Inc. v. Dickstein Shapiro LLP*, for instance, the district court held that the patentholder’s malpractice case could not succeed because even if the defendant law firm had rendered deficient performance, the subsequent *Alice* decision would have invalidated the patent anyway. See 128 F. Supp. 3d 103, 110-12, 116 (D.D.C. 2015), *aff’d per curiam*, 653 F. App’x 764 (D.C. Cir. 2016). To justify this holding, the court decided that *Alice* did not change the law—contrary to the Federal Circuit’s view in *First Choice Loan* and *Inventor Holdings*. See *Encyclopaedia Britannica*, 128 F. Supp. 3d at 110-11; see also David Hricik, *Update: If Alice Was Always the Law, Why Did You Get So Many “Invalid” Patents for Your Clients?*, PATENTLY-O (Sept. 26, 2016), <https://perma.cc/YV7X-K7BG>.

237. Cf. Bronsteen, *supra* note 117, at 535-36 (analyzing the effects of judicial asymmetries in the context of summary judgment).

238. See *Diamond v. Chakrabarty*, 447 U.S. 303, 317 (1980) (insisting that legal policymaking is a matter for Congress); see also *infra* Part IV.D.

If a court decides that it has created a new legal rule, the last remaining question is whether the rule should be fully retroactive and prospective, or merely prospective.²³⁹ The court that creates the new rule could decide this question as well, but it is not necessary for it to do so. It could leave the issue open and allow a subsequent litigant—who wishes the rule to be applied retroactively—to raise it before a future court.

There are advantages and disadvantages to both approaches. The court that first issues the new legal ruling may understand the rule best and have already done the hard work of thinking through the costs and benefits of its approach. It may be best situated to decide whether the rule should be applied retroactively. On the other hand, a subsequent court would have the advantage of having observed reactions to the new legal rule and assessed its operation, which might provide valuable information regarding whether the rule should be applied retroactively. And the ability to outsource the decision on retroactivity to another court may make judges more inclined to issue new legal rules, thereby advancing the law in beneficial ways. We take no position on the overall question of which approach is best. Both are consistent with the more general goal of permitting courts to engage in nonretroactive lawmaking.

In sum, the process for deciding the retroactive effect of patent cases would mirror the procedure that courts already employ in habeas cases, with only one salient difference. While new rules of criminal procedure are almost always made purely prospective in the context of habeas, patent courts would have the authority to decide whether any new rule should be retroactive.

It is worth noting that the purposes behind the *Teague* rule even mirror the purposes of nonretroactive patent law that we describe here. As Justice Kennedy later explained, the purpose of the *Teague* rule was to allow federal

239. As we will describe in greater detail below, the Supreme Court has held that courts may only make a prospective rule if they do *not* apply the new rule to the parties before the court. See *Harper v. Va. Dep't of Taxation*, 509 U.S. 86, 97-98 (1993); *infra* Part IV.D. Accordingly, a court has only two choices: (1) apply the decision fully retroactively *and* prospectively; or (2) apply it only prospectively, and not to the parties in the current case.

There is a downside to the Supreme Court's approach. If the courts do not always apply legal rules to the cases in which they are decided, litigants will have less of an incentive to argue for legal change, thus slowing the pace of the law's development. See Malani & Masur, *supra* note 26, at 668-69 (analyzing private incentives to produce public goods through litigation). Litigants might also try harder than usual to frame their arguments as mere extensions of existing law, rather than as new legal rules, further distorting the process of argument and decision. In addition, a newly announced legal rule would technically be mere dicta if it did not apply to the case at hand. Regardless, these are relatively minor concerns when measured against the potential legal gains from issuing purely prospective rulings. And until the Supreme Court revisits *Harper*, it is not as if the lower courts have any other choice.

courts to change the law of criminal procedure without overturning thousands of existing convictions each time they did so.²⁴⁰ If every criminal procedure decision were necessarily fully retroactive, courts might refrain from making necessary changes to the law for fear of the consequences.²⁴¹ And when they did alter the law, the retroactive harms might outweigh the prospective benefits. As we have explained, these considerations apply with even greater force to patent law.²⁴²

If a court decides to make a new rule of patent law nonretroactive, the rule should apply only to patents that were filed after the date of the ruling.²⁴³ This cutoff is to some extent arbitrary—the rule could just as easily be applied to patents *granted* after the date of the ruling, or to inventions that were conceived or reduced to practice or published after the date of the ruling, or some other such moment in the patent lifecycle. But the filing date is administratively easy to observe, and it serves as a rough proxy of the moment when a reliance interest attaches.²⁴⁴ After all, a patent application is drafted to

240. See *Wright v. West*, 505 U.S. 277, 307-09 (1992) (Kennedy, J., concurring in the judgment).

241. See *id.*

242. A full evaluation of the *Teague* rule as applied to habeas is well beyond the scope of this Article. We pause only to note that every time a court applies *Teague* in a criminal procedure case, it creates an injustice by leaving in prison an individual who might otherwise never have been convicted if the new rule had been in place. For this reason, there are good arguments for overturning *Teague* as applied to habeas. No such concern is present in patent law, of course, where only intellectual property rights—rather than individuals' lives and liberty—are at stake.

243. By “filing,” we mean here the regular U.S. filing date, not the priority filing date of the patent application. In U.S. patent prosecution practice, a “continuation” application can claim the priority date of a prior provisional or regular U.S. patent application, tracing that priority back through as many earlier continuation applications as exist in the patent family. See 4 JOHN GLADSTONE MILLS III ET AL., PATENT LAW FUNDAMENTALS § 15:7 (West 2d ed. 2019). When the Federal Circuit or the Supreme Court makes a new rule, that rule should apply immediately to new patent applications that are filed, regardless of whether those applications claim priority to applications that were filed before the new rule. When a firm files a patent application, even a continuation application, it does so with full knowledge of existing law. Reliance concerns are weak, even for applications that relate to prior patents. This approach would eliminate patentees' ability to game the system by filing for continuation patents years or even decades after an unfavorable judicial decision. See 35 U.S.C. § 120 (2017) (providing applicants the right to claim priority to patent applications filed earlier); 4 MILLS ET AL., *supra*, § 15:7; see also *id.* (“Under present practice, there is no limit to the number of prior applications through which a chain of continuing applications may be traced to obtain the benefit of the filing date of the earliest of a chain of prior continuing applications.”).

244. Here, too, there is a concern related to symmetry as between patents and firms' freedom to operate. It is straightforward to make nonretroactive a decision reducing the scope of patents or patentability. That decision simply has to be held not to apply to patents that have already been applied for or granted, as described above. It is less straightforward to make nonretroactive a decision that expands the scope or power of

footnote continued on next page

comport with existing law, and only the claims can be amended after filing.²⁴⁵ Changes to the law subsequent to the initial application filing can trap the applicant, to the detriment of that firm and the patent system as a whole.²⁴⁶

2. Forum-based prospectivity

There is a potential extension of this approach that borrows even more explicitly from the law of habeas. There are two contexts in which federal courts consider questions of constitutional criminal procedure: direct review of criminal convictions and habeas (collateral) review.²⁴⁷ Under *Teague*, federal courts are generally barred from applying new legal rules to criminal cases on habeas review, but they must apply those rules to cases on direct review.²⁴⁸ In addition, *Teague* generally bars the federal courts from *creating* new legal rules in habeas cases.²⁴⁹ Rather, a federal court is only permitted to alter the law when deciding a case on direct review.

The Federal Circuit similarly considers questions of patent law in two contexts: appeals from the district courts arising out of infringement litigation

patents. In such a case, the thing that must be protected is a firm's ability to operate outside of the realm of patents, rather than existing patents themselves. If a court decides not to apply a new legal rule to existing patents, that will not necessarily function as meaningful grandfathering of the existing activity, because there are likely few relevant existing patents in the first place. Instead, to reinforce the nonretroactive effects of their decisions, courts should consider issuing new legal rules but delaying the onset of those rules for a period of several years. These types of "sunrise clauses" are typical in legislation and regulation. See generally Daniel E. Herz-Roiphe & David Singh Grewal, *Make Me Democratic, but Not Yet: Sunrise Lawmaking and Democratic Constitutionalism*, 90 N.Y.U. L. REV. 1975 (2015) (describing the operation of "sunrise" and "sunset" clauses across a variety of legal domains). It is even relatively common for courts to use stays of this sort when it is necessary to give the affected parties time to adjust or prepare to implement a decision. See, e.g., *Moore v. Madigan*, 702 F.3d 933, 934-35, 942 (7th Cir. 2012) (holding an Illinois ban on carrying firearms ready for use to be unconstitutional under the Second Amendment, but staying the mandate for 180 days "to allow the Illinois legislature to craft a new gun law"). Patent courts should embrace this practice.

245. See Michael Risch, *A Brief Defense of the Written Description Requirement*, 119 YALE L.J. ONLINE 127, 129-30 (2010).

246. See Schwartz, *supra* note 67, at 1553-55 (explaining how retroactive patent decisions can harm patent applicants who have drafted patents with existing law in mind).

247. See Jonathan S. Masur & Lisa Larrimore Ouellette, *Deference Mistakes*, 82 U. CHI. L. REV. 643, 667-68 (2015).

248. See *Whorton v. Bockting*, 549 U.S. 406, 416 (2007) ("Under the *Teague* framework, an old rule applies both on direct and collateral review, but a new rule is generally applicable only to cases that are still on direct review.").

249. See *Teague v. Lane*, 489 U.S. 288, 315-16 (1989) (plurality opinion); see also 28 U.S.C. § 2254(d)(1) (2017) (explaining that habeas relief is unavailable unless the state court's decision was contrary to clearly established federal law).

and challenges to issued patents,²⁵⁰ and direct appeals from patent prosecution in the PTO.²⁵¹ Direct appeals from patent prosecutions are analogous to direct review of criminal cases—the patent has not yet been issued or finalized.²⁵² Appeals of district court litigation and inter partes review have the same flavor as habeas review, in the sense that they involve collateral attacks on existing patents.

Accordingly, we could imagine another version of prospectivity that applies the habeas rules even more strictly to patent law. Under this approach, the federal courts would be barred from creating new rules of patent law in appeals from district court infringement litigation, and possibly also in appeals from inter partes review and ex parte reexamination (the collateral context). They would be permitted to create new rules only in the context of direct appeals from PTO decisions in patent prosecutions and in post-grant reviews (the direct review context). These new rules would then only apply to patents that are pending before the PTO or filed after the date of the decision.

For example, this approach would have barred the courts from announcing a new rule of patentability in *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*²⁵³ That case arose from district court litigation, which we have analogized to collateral review.²⁵⁴ But the Federal Circuit or the Supreme Court could have announced the same rule in connection with an appeal from a denied patent or a post-grant review.²⁵⁵ The new rule would then apply to any case appealed directly from the PTO, and to all patents (in litigation and otherwise) whose applications were filed after the rule was announced.

This approach eliminates much of the judicial discretion embodied in the procedure we discussed above.²⁵⁶ New rules could only be created in certain cases, and those new rules would never be applied retroactively to patents that

250. See 28 U.S.C. § 1295(a)(1). We would include in this category appeals from the PTO's decisions in inter partes review—a PTO-based proceeding in which a third party can challenge a patent—because these decisions are so closely connected to litigation. See S. REP. NO. 110-259, at 20 (2008) (describing inter partes review as “a quick, inexpensive, and reliable alternative to district court litigation”); see also 35 U.S.C. § 311 (2017).

251. This includes appeals from frustrated patent applicants whose applications the PTO has denied. See 28 U.S.C. § 1295(a)(4)(A).

252. This is not quite true for challenges arising out of post-grant review proceedings, which involve very recently issued patents. See 35 U.S.C. § 321(c). In those cases, however, the issue is whether the patent should have been granted in the first place, and the only questions relate to validity, so it is as if the patent is not yet “final.”

253. 569 U.S. 576 (2013); see *supra* notes 62-66 and accompanying text.

254. See *Myriad*, 569 U.S. at 586.

255. Patents can be challenged for lack of patentable subject matter—the legal issue in *Myriad*, see *id.* at 589-90—in post-grant review. See 35 U.S.C. § 321(b).

256. See *supra* Part IV.C.1.

had already been granted and were now the subject of litigation. The advantage of this alternative lies in the greater certainty it would provide to patent plaintiffs and defendants regarding when and how the law might be changed. The parties to a patent litigation would know precisely what legal rules would apply in their case, and they could be confident that those rules would remain unchanged.

This alternative comes with downsides, however. The Federal Circuit hears roughly equal numbers of patent cases on (direct) appeal from the PTO and on (collateral) appeal from the district courts. (The former figure includes appeals from inter partes review, which we view as a species of collateral attack.)²⁵⁷ Barring the Federal Circuit (and the Supreme Court) from making new legal rules in any case on appeal from the district courts could thus eliminate significant opportunities for the courts to update the law. Moreover, many important patent law issues arise *only* in the context of infringement litigation—questions related to infringement,²⁵⁸ damages,²⁵⁹ and injunctive relief,²⁶⁰ among many others. At minimum, therefore, it would be necessary to permit courts to alter these doctrinal rules in the context of litigation. Finally, implementing this alternative would require either legislation or new law from the Supreme Court.²⁶¹ In contrast, the more discretionary proposal we described in Part IV.C.1 above is permissible under existing Supreme Court precedent, as we will explain below. For these reasons, we do not necessarily recommend this alternative approach. We merely present it as a potential extension of our habeas-based model of prospective judicial lawmaking.

257. See U.S. Courts, Table B-8: U.S. Court of Appeals for the Federal Circuit—Appeals Filed, Terminated, and Pending During the 12-Month Period Ending March 31, 2017 (n.d.), <https://perma.cc/FVF8-TBL9>; see also *supra* note 250.

258. See, e.g., *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 736-37 (2002) (setting forth the rules for when prosecution history estoppel applies). See generally Jonathan S. Masur, *Patent Liability Rules as Search Rules*, 78 U. CHI. L. REV. 187 (2011) (describing and analyzing rules related to indirect infringement liability).

259. See, e.g., *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 56 (Fed. Cir. 2012) (addressing a number of questions related to patent damages). See generally Erik Hovenkamp & Jonathan Masur, *How Patent Damages Skew Licensing Markets*, 36 REV. LITIG. 379 (2017) (explaining how the Federal Circuit's licensing rules affect the use and value of patents); Masur, *supra* note 109 (describing and analyzing the Federal Circuit's rules on using existing licenses as the basis for assessing patent damages).

260. See, e.g., *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 390-91 (2006) (holding that patent owners must satisfy a four-factor test in order to obtain an injunction).

261. Under current law, courts are of course permitted to make new legal rules in the context of patent litigation. See, e.g., *Myriad*, 569 U.S. at 580, 586 (making new law governing the patentability of natural substances); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72-73, 75-76 (2012) (making new law governing the patentability of laws of nature). Congress or the Supreme Court could change this longstanding rule, but the lower courts could not do it of their own accord.

D. The Law of Nonretroactivity

Given the many advantages of purely prospective legal change, there are compelling reasons to permit courts to decide whether to apply their decisions retroactively. Indeed, the Supreme Court has largely allowed the practice, subject to one restriction. In a series of cases culminating in *Harper v. Virginia Department of Taxation*, the Court held that when it

applies a rule of federal law to the parties before it, that rule is the controlling interpretation of federal law and must be given full retroactive effect in all cases still open on direct review and as to all events, regardless of whether such events predate or postdate our announcement of the rule.²⁶²

Thus, by implication, courts remain free to issue purely prospective rulings, so long as they do not apply those rulings to the parties who brought the case. That might seem at first glance to be a tendentious reading of the Court's opinion. But in fact, multiple courts of appeals have interpreted *Harper* in precisely this fashion.²⁶³ As we noted earlier, the fact that the decision could not be applied to the parties to the instant lawsuit may dampen litigants' incentives to raise genuinely new legal theories.²⁶⁴ But this is a marginal consideration. Far more important is the fact that patent courts currently possess the authority to render purely prospective decisions in cases that warrant such an approach.²⁶⁵

The appellate courts' interpretations to the side, some readers might have the intuition that allowing courts to make purely prospective legal rules raises

262. 509 U.S. 86, 97 (1993); *see also* James B. Beam Distilling Co. v. Georgia, 501 U.S. 529, 532-34 (1991) (opinion of Souter, J.) (noting that an earlier holding that interstate discrimination in alcohol taxes violated the Commerce Clause applied retroactively to facts antedating the Court's decision); RICHARD H. FALLON, JR. ET AL., HART AND WECHSLER'S THE FEDERAL COURTS AND THE FEDERAL SYSTEM 54-55 (7th ed. 2015) (describing the law of retroactivity).

263. *See, e.g.*, Nunez-Reyes v. Holder, 646 F.3d 684, 690 (9th Cir. 2011) (en banc) ("[A] court announcing a new rule of law must decide between pure prospectivity and full retroactivity . . ."); Crowe v. Bolduc, 365 F.3d 86, 93 (1st Cir. 2004) ("A court in a civil case may apply a decision purely prospectively, binding neither the parties before it nor similarly situated parties in other pending cases, depending on the answers to three questions."); Glazner v. Glazner, 347 F.3d 1212, 1216 (11th Cir. 2003) (en banc) ("Although prospectivity appears to have fallen into disfavor with the Supreme Court, the Court has clearly retained the possibility of pure prospectivity . . ." (citation omitted)); *see also* 1 LAURENCE H. TRIBE, AMERICAN CONSTITUTIONAL LAW § 3-3, at 226 (3d ed. 2000) ("[T]he Court has not renounced the power to make its decisions *entirely* prospective, so that they do not apply even to the parties before it."). *But cf.* Daniel Hemel, *There Is No Retroactivity Concern with Overruling Quill*, MEDIUM (Jan. 28, 2018), <https://perma.cc/YH87-MU53> (suggesting that the question whether the Court believes prospectivity is allowed is somewhat unsettled).

264. *See supra* note 239.

265. The Court has created a similar rule to govern criminal cases. *See* Griffith v. Kentucky, 479 U.S. 314, 324-25 (1987).

Article III concerns. The idea is that Article III grants the federal courts only “judicial Power,” not legislative power.²⁶⁶ Judicial power is authority to find, or interpret, law that has been made by some other body, such as the legislature.²⁶⁷ It does not comprise the power to “make” new law. On this reading, purely prospective legal rulemaking, in which a court declares that the law is now different than it was before, would be a constitutionally impermissible exercise of legislative power.²⁶⁸

Indeed, the language of the Supreme Court’s retroactivity decisions reveals concerns of this nature. As Justice Thomas wrote for the Court in *Harper*, “the nature of judicial review’ strips us of the quintessentially ‘legislat[ive]’ prerogative to make rules of law retroactive or prospective as we see fit.”²⁶⁹ The *Harper* majority described this principle as a legal axiom, antecedent to the Constitution itself, rather than grounded in the Constitution’s text.²⁷⁰ Justice Scalia’s concurrence expressed a similar sentiment, rooted instead in Article III.²⁷¹ In *James B. Beam Distilling Co. v. Georgia*, a precursor to *Harper*, Justice Scalia had similarly explained:

I am not so naive (nor do I think our forebears were) as to be unaware that judges in a real sense “make” law. But they make it *as judges make it*, which is to say *as though* they were “finding” it—discerning what the law *is*, rather than decreeing what it is today *changed to*, or what it will *tomorrow* be.²⁷²

Yet this approach to the law does not pose a barrier to nonretroactive judicial *patent* decisions, even if it might be seen as barring nonretroactive decisions in other contexts. Congress passes patent laws under its authority “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective

266. See U.S. CONST. art. III, § 1.

267. On this account, courts merely “find” the law, in the sense that they uncover what the law means (and has always meant). When a court changes the law, it is merely correcting past judicial mistakes. It is not actually making new law; that is a legislative task. See Thomas W. Merrill, *The Common Law Powers of Federal Courts*, 52 U. CHI. L. REV. 1, 65 n.279 (1985) (attributing this view of courts to Blackstone).

268. One could also imagine an argument that a purely prospective decision might raise concerns that the court is offering an advisory opinion, which would similarly violate Article III. See FALLON ET AL., *supra* note 262, at 54-55. But this particular concern has no force. An advisory opinion is one that does not resolve the case before the court. A purely prospective new legal rule would still result in a decision that resolved the case before the court—it would merely do so according to the old legal rule. That would not constitute an advisory opinion.

269. *Harper v. Va. Dep’t of Taxation*, 509 U.S. 86, 95 (1993) (alteration in original) (quoting *Griffith*, 479 U.S. at 322).

270. See *id.* at 94.

271. See *id.* at 106 (Scalia, J., concurring) (“The true *traditional* view is that prospective decisionmaking is quite incompatible with the judicial power . . .”).

272. 501 U.S. 529, 549 (1991) (Scalia, J., concurring in the judgment).

Writings and Discoveries.”²⁷³ Patent laws exist in order to promote the progress of science—that is their animating purpose. Accordingly, courts should interpret patent statutes—which are often written in very general terms—in light of this constitutional purpose. Of course, as we have noted, technology and markets change dramatically over time.²⁷⁴ The set of legal rules that best promoted the progress of science in 1968 may not be especially effective at promoting progress in 2018, and vice versa. This means that one interpretation of the patent laws might have been “correct” in 1968, and another version might be “correct” in 2018, without the text of the law itself ever having changed. A court that reinterpreted the law in 2018 but did not apply the new rule retroactively would not be making new law; it would merely be finding the law as it should be understood in contemporary times.²⁷⁵ It is in this respect that patent law is potentially atypical: The constitutional provision that authorizes Congress to make law demands that the law be updated (by Congress or the courts) in a forward-looking manner.

This is particularly true for areas of law that are explicitly driven by judicial lawmaking. For instance, the Federal Circuit has described the rule that laws of nature, abstract ideas, and natural phenomena are not patentable subject matter as a “judicially-crafted exception[.]”²⁷⁶ If the courts have the authority to craft such an exception—and they undoubtedly do—then they similarly have the authority to apply it only prospectively if they so choose.²⁷⁷

In addition, suppose that the Federal Circuit were to issue a decision in 2018 that changed a particular patent rule from Rule *X* to Rule *Y*. Even if the court were merely finding law, and even if this decision meant that Rule *Y* had always been correct, and Rule *X* had always been incorrect, this does not mean

273. U.S. CONST. art. I, § 8, cl. 8.

274. See *supra* text accompanying note 83.

275. See William Baude, Essay, *Is Originalism Our Law?*, 115 COLUM. L. REV. 2349, 2356 (2015) (“At a most basic level, it does not take any fancy theoretical footwork to see that fixed texts can harness what seem to be changing meanings. Though the text may have originally been *expected* to apply in a particular way to a particular circumstance, that does not mean that its original meaning always must apply in the same way. . . . This is because a word can have a fixed abstract meaning even if the specific facts that meaning points to change over time.”).

276. See *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1331 (Fed. Cir. 2015); see also *Bilski v. Kappos*, 561 U.S. 593, 601-02 (2010) (“The Court’s precedents provide three specific exceptions to § 101’s broad patent-eligibility principles: ‘laws of nature, physical phenomena, and abstract ideas.’ While these exceptions are not required by the statutory text, they are consistent with the notion that a patentable process must be ‘new and useful.’ And, in any case, these exceptions have defined the reach of the statute as a matter of statutory *stare decisis* going back 150 years.” (citation omitted) (first quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980); and then quoting 35 U.S.C. § 101)).

277. We thank Judge Kimberly Ann Moore for suggesting this point to us.

that the court would be obligated to apply Rule *Y* retroactively. Federal courts have the authority to tailor their remedies pragmatically.²⁷⁸ In such a case, the Federal Circuit could decide that even though the correct rule has always been Rule *Y*, it will not apply Rule *Y* to parties that have already applied for patents under Rule *X*. The pragmatic reason would be the reliance interests held by those parties, the same rationale that animates *stare decisis* and leads courts to adhere to potentially suboptimal rules over time.²⁷⁹ Thus, even courts or scholars who hold a formalistic view of Article III should not balk at the idea of nonretroactive patent decisions.

What is more, there are good reasons to reject such a formalistic view of the judicial role. Ever since the legal realists, sophisticated legal observers have understood that the courts make law, just as legislatures and agencies do.²⁸⁰ The notion that the courts only “find” what law the other branches have made is a legal fiction that fools few educated observers and is routinely contravened in public by other judges.²⁸¹ Perhaps it is politically expedient for courts to maintain that they do not make new law, but even if so, it is a strategy that is becoming less and less useful each day.²⁸² More importantly, it lacks the virtue of being true. As a descriptive matter, this could well be why the Supreme

278. See generally Aaron Tang & Fred O. Smith Jr., Response, *Can Unions Be Sued for Following the Law?*, 132 HARV. L. REV. F. 24 (2018) (responding to William Baude & Eugene Volokh, *The Supreme Court, 2017 Term—Comment: Compelled Subsidies and the First Amendment*, 132 HARV. L. REV. 171 (2018)) (discussing the courts’ authority to make prospective rulings, describing why courts might choose to do so, and providing examples of instances in which courts have effectively made purely prospective rules).

279. See *supra* text accompanying notes 59-60.

280. See, e.g., Felix S. Cohen, *Transcendental Nonsense and the Functional Approach*, 35 COLUM. L. REV. 809, 841 (1935) (“[T]he problem of the judge is not whether a legal rule or concept actually exists but whether it *ought* to exist.”); Karl N. Llewellyn, *Some Realism About Realism—Responding to Dean Pound*, 44 HARV. L. REV. 1222, 1235-36 (1931) (responding to Roscoe Pound, *The Call for a Realist Jurisprudence*, 44 HARV. L. REV. 697 (1931)) (describing as a core realist belief “[t]he conception of law in flux, of moving law, and of judicial creation of law”).

281. See, e.g., RICHARD A. POSNER, HOW JUDGES THINK 81 (2008) (“Appellate judges are occasional legislators.” (emphasis omitted)).

282. This notion is somewhat akin to Chief Justice Roberts’s famous statement during his confirmation hearings that his role as a judge was merely to “call balls and strikes,” a claim that was roundly criticized as disingenuous and implausible. See, e.g., Todd E. Pettys, *The Myth of the Written Constitution*, 84 NOTRE DAME L. REV. 991, 995, 1047 (2009) (calling Chief Justice Roberts’s analogy “unfortunate”); see also *Confirmation Hearing on the Nomination of John G. Roberts, Jr. to Be Chief Justice of the U.S.: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. 56 (2005) (statement of John G. Roberts, Jr., Nominee to Be Chief Justice of the United States).

Court has expressed concern about courts being granted unencumbered authority to issue prospective or retrospective decisions as they see fit.²⁸³ But as a normative matter, it does not offer grounds for doubting prospective judicial lawmaking.²⁸⁴

Indeed, the Ex Post Facto Clause of the Constitution effectively *requires* prospective judicial lawmaking with respect to substantive criminal law.²⁸⁵ The Ex Post Facto Clause is based upon the principle “that persons have a right to fair warning of that conduct which will give rise to criminal penalties” and thus cannot be convicted under a rule of law that did not exist at the time they engaged in the conduct in question.²⁸⁶ The Clause applies only to Congress, but the Court has extended and applied the same principle to judicial decisions via the Due Process Clause.²⁸⁷ This means that any judicial decision that broadens the scope of criminal liability—by limiting a constitutional protection, for instance—is necessarily prospective only, applying only to conduct that occurs after the Court’s decision is announced.²⁸⁸ This of course precisely parallels our proposed approach to patent law. And here, the legislative nature of purely prospective judicial rulings has not troubled the Court.

The Court’s view of nonretroactive judicial decisionmaking is also incongruous with the law of habeas corpus. In the realm of habeas and criminal procedure, rulings that apply to the parties to the lawsuit but *not* retroactively are not merely permitted but required.²⁸⁹ That is, if a criminal defendant on direct review persuades a court to create a new legal rule, that new legal rule will always apply to that criminal defendant.²⁹⁰ But it typically will not apply

283. *See supra* text accompanying note 262.

284. The *Harper* majority also suggested that applying a rule of decision to the parties in a case but not retroactively would “violate[] the principle of treating similarly situated [parties] the same.” *Harper v. Va. Dep’t of Taxation*, 509 U.S. 86, 95 (1993) (quoting *Griffith v. Kentucky*, 479 U.S. 314, 323 (1987)). But this concern is similarly unfounded. Similarly situated parties are often treated differently based upon when or where their cases are heard and adjudicated, with no hint that this might raise constitutional problems. *See Great N. Ry. Co. v. Sunburst Oil & Ref. Co.*, 287 U.S. 358, 359-61, 364-65 (1932) (holding, in a case where the Montana Supreme Court had issued a fully prospective statutory interpretation ruling, that due process did not demand application of that ruling to the litigant who had actually obtained it). It is hard to imagine a reason why differentiation on the basis of litigation timing would be acceptable, but differentiation on the basis of when the underlying right was created would not be.

285. *See* U.S. CONST. art. I, § 9, cl. 3.

286. *See Marks v. United States*, 430 U.S. 188, 191-92 (1997).

287. *See Bouie v. City of Columbia*, 378 U.S. 347, 362 (1964).

288. *See Marks*, 430 U.S. at 192.

289. *See supra* notes 227-30 and accompanying text.

290. *See Schiro v. Summerlin*, 542 U.S. 348, 351 (2004); *see also Teague v. Lane*, 489 U.S. 288, 302-05 (1989) (plurality opinion) (criticizing the earlier retroactivity regime wherein new rules were not applied to all cases still pending on direct review).

retroactively to habeas petitioners who remain in the custody of the state.²⁹¹ More generally, when the Supreme Court recognizes a rule of criminal procedure, it must then subsequently declare whether the rule is “new” or merely derives from an existing rule.²⁹² For a Court that seems invested in the idea that only legislatures create new, prospective laws, this is an odd posture.²⁹³

Perhaps paradoxically, the “legislative” nature of prospective rules should serve as a signal of their value, rather than a cause for concern. In areas of law governed by statute and regulation, policymakers have long benefitted from the flexibility to create nonretroactive legal rules. Patent law has not enjoyed this flexibility, precisely because the relevant legal rules are created by judges rather than legislatures and agencies.²⁹⁴ Yet the federal courts do not lack the power to make purely prospective legal rules—the Supreme Court has approved the practice. The federal courts thus suffer not from a failure of

291. See, e.g., *Summerlin*, 542 U.S. at 358.

292. See *Teague*, 489 U.S. at 311-12 (plurality opinion).

293. It is possible to construct an argument that *Teague* mirrors how courts address other areas of law. For instance, if a court decides an employment law case at time t_1 , and at a later time t_2 the Supreme Court makes a change to employment law doctrine, the first court will not (and cannot) reopen the decision at t_1 . That decision is final. This is the general rule across essentially every area of law. See *Thyssenkrupp Steel N. Am., Inc. v. United States*, 886 F.3d 1215, 1223 & n.3 (Fed. Cir. 2018) (describing the general rule of finality in civil litigation). Thus, if one thinks of a criminal conviction that has become final on direct review as akin to a final decision in any other legal field, the rule of *Teague* regarding nonretroactive criminal procedure rules appears congruent with the rest of the law. This is because most legal rulings are nonretroactive as to cases that have already been decided, though not as to conduct that has already occurred.

The flaw in this approach is the formalism of defining a criminal conviction as final once the prisoner has exhausted his or her direct appeals. In fact, a conviction that is final on direct appeal is neither legally final—because of the possibility of habeas relief—nor substantively final—because the prisoner suffers the ongoing harm of incarceration. *Teague* only looks like other areas of the law if one artificially defines a conviction as final when direct appeals are exhausted. Moreover, *Teague* forces courts to act in ways that contradict the Supreme Court’s general posture toward retroactivity, as described in the main text.

294. The rare exceptions are the few patent rules created through regulation by the PTO. Those rules are frequently only prospective in application. For instance, in October 2018 the PTO announced that it was changing the claim construction standard it would use in inter partes review, post-grant review, and covered business method proceedings. See *Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340, 51,340, 51,358-59 (Oct. 11, 2018) (to be codified at 37 C.F.R. § 42.200). The PTO made the new rule prospective: It applies only to petitions for review filed on or after November 13, 2018, the effective date of the rule. See *id.* at 51,340.

authority, but from a failure of imagination. The time has come for courts to extend the practice of prospective lawmaking beyond the realm of habeas to other areas of law.²⁹⁵ Patent law is especially fertile ground for such an extension.

Conclusion

When the courts alter patent law, they upset existing reliance interests and undermine the settled expectations of patent owners. This can dissuade firms from engaging in R&D in the first place and lead to an overall decline in innovation. Perhaps more importantly, courts are aware of these concerns, which can make them reluctant to enact significant legal change. Indeed, the principle of stare decisis is based in part around the idea that courts should avoid upsetting reliance interests. Courts that fear doing violence to settled expectations can (and do) stay their hands, to the detriment of the law's development.

The solution to this problem is not for courts to refrain from updating the law. Rather, the solution is for judges to be afforded the authority to make purely prospective changes to the law, effectively grandfathering existing patents (or patent-free zones). Doing so would permit brisk legal change without fear of harming expectation-based investments. And because patents expire twenty years after filing, "old" patents that have been grandfathered would soon exit the scene. The U.S. Supreme Court has permitted prospective decisionmaking in other contexts, despite concerns for its institutional reputation. The time has come for lower courts—and the Federal Circuit in particular—to accept the Supreme Court's invitation. Patent law and its stakeholders stand to benefit greatly from the change.

295. Indeed, habeas itself may in many respects be a poor candidate for nonretroactive rulings. See Kendall Turner, Note, *A New Approach to the Teague Doctrine*, 66 STAN. L. REV. 1159, 1171-75 (2014) (criticizing the application of *Teague* in many habeas contexts).