From Property to Contract: The Eleventh Amendment and University-Private Sector Intellectual Property Relationships

Robert G. Bone

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I. INTRODUCTION

The subject of this Article lies at the intersection of two distinct areas of the law—intellectual property (IP) and federal jurisdiction. It focuses on a question made particularly salient by recent Supreme Court decisions: What is likely to happen when federal intellectual property rights cannot be enforced against state universities because of Eleventh Amendment jurisdictional obstacles? This question is especially important for transactions between private intellectual property firms and state universities. And the answer to the question is not nearly as obvious as many commentators suppose.

Two developments over the past twenty years frame the inquiry. The first is the sharp increase in the number and importance of intellectual property transactions between universities and private firms. Some of these transactions involve simple consulting arrangements.

* Professor of Law, Boston University School of Law. I would like to thank my colleagues, Jack Beermann and Larry Yackle, for helpful conversations about the ideas in this Article. I am also grateful to the participants in the Loyola Federalism Symposium and the editors of the Loyola of Los Angeles Law Review for stimulating discussion and useful input. All errors, of course, are mine.

Others involve more complex and institutionalized forms of collaboration, such as joint ventures that combine the talents of multiple faculty and private sector employees in the service of specific research projects and university research centers funded in major part by private industry and committed to long-term and broad-based research collaboration.\(^2\)

Federal policy places a high priority on this kind of research cooperation and on the transfer of government-funded research technology to the private sector.\(^3\) In 1980, for example, Congress enacted the Bayh-Dole Act,\(^4\) which for the first time allowed universities to patent government-funded research results and grant exclusive licenses to private firms. Since 1980, the federal government has strongly encouraged university-industry cooperation by conditioning National Science Foundation research grants on industry involvement with university research projects and creating special funding programs, like the Advanced Technology Program, that target joint research ventures.\(^5\)

The second development that frames the subject of this Article is the United States Supreme Court’s increasingly strong commitment to state sovereignty and Eleventh Amendment immunity. In a 1985 opinion, *Atascadero State Hospital v. Scanlon*,\(^6\) the Court made

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2. *See* Baldwin, *supra* note 1, at 639-40 (“The forms of [association with for-profit business] are varied, including consulting by individual faculty members; individual and institutional research grants; major contracts with the university; affiliate programs; exchange of personnel; endowment or other support of university research facilities; venture capital companies formed by university researchers, sometimes with the participation of the university itself; and finally joint ventures and other forms of consortia.”). Also universities sometimes spin off private research companies, to which they make substantial investments. *See* Florida, *supra* note 1, at 4.


it plain that Congress can abrogate state Eleventh Amendment immunity only by using unmistakably clear statutory language. Since the federal patent, copyright, and trademark statutes left room for ambiguity, *Atascadero* raised serious doubts about the enforceability of federal intellectual property laws against state defendants.  

Congress responded by clarifying its intent to abrogate only to have the Court strike down the abrogation as beyond congressional power. It is now clear that private parties cannot sue state universities for damages for patent or copyright infringement unless the state consents to suit. Moreover, it is also clear that Congress has very limited power to change this result by legislation.

This Article explores the interaction between these two developments and focuses, in particular, on the impact of the Court's Eleventh Amendment jurisprudence on intellectual property relationships between state universities and private industry. By furnishing security against appropriation, federal and state intellectual property laws reduce the risks associated with sharing valuable research and proprietary information in a common venture. Moreover, by conferring exclusivity over research results, intellectual property law makes it possible for parties to extract the surplus from cooperation, thereby making cooperation more attractive in the first place. Thus, one might expect that an inability to enforce intellectual property laws against state universities due to Eleventh Amendment immunity would have a negative impact on university-industry research cooperation.

Whether this will be the result, however, depends on the incentives of state universities to appropriate intellectual property and on the legal and nonlegal alternatives available to private firms to protect themselves against appropriation. Critics of the Supreme Court's Eleventh Amendment jurisprudence predict widespread state infringement, while defenders predict voluntary compliance by states
even without the threat of legal sanction. Both predictions are too simplistic. They ignore the availability of informal mechanisms to assure compliance, such as nonlegal sanctions and reputation effects, and they overlook the ways in which infringement threats can alter behavior without actually being carried out.

This Article argues that the Eleventh Amendment’s impact is likely to be more subtle and indirect. Because it undermines the utility of property rights, the Eleventh Amendment tends to push private firms toward reliance on contract to manage the risks of misappropriation. This shift from property to contract makes it more important for firms to limit disclosure to relational settings and thus encourages greater reliance on secrecy for longer periods of time. Problems arise because secrecy can impede cooperation and future innovation. As a result, it is possible for a broad Eleventh Amendment to produce significant social costs without leaving any substantial record of actual state infringement. For this reason, the Supreme Court’s insistence on evidence of widespread infringement before Congress can abrogate state immunity might prove a more formidable obstacle to congressional abrogation and thus a more serious threat to research and development than may at first appear.

The remainder of this Article is divided into four parts. Part II outlines a rough taxonomy of situations in which state universities interact with private industry regarding intellectual property assets. All these situations create opportunities for intellectual property disputes.

Part III analyzes the legal effect of the Supreme Court’s Eleventh Amendment jurisprudence in the intellectual property field. It concludes that state contract and trade secret remedies are the most promising avenues for legal protection.

Part IV then examines the impact of Part III’s legal analysis on the different university-industry relationships described in Part II. It disputes the simple account that assumes widespread state infringement. It predicts, instead, that there will be some amount of voluntary state compliance coupled with enhanced incentives for firms to keep intellectual property assets secret and to use contract and trade secret law to protect them.

The Article then concludes in Part V by exploring some of the broader implications of these predictions. In the end, if the Eleventh
Amendment is a serious problem, its adverse impact may have less to do with actual infringement and more to do with the indirect costs created by strategic responses to heightened infringement risks.

II. A ROUGH TAXONOMY OF UNIVERSITY-RELATED IP DISPUTES

The following is a brief taxonomy of intellectual property disputes involving state universities. It distinguishes between situations where appropriation occurs in the context of a pre-existing relationship and situations where it does not. This distinction is important because it affects a firm's options to manage the risks of state immunity. In particular, only parties connected by a relationship can use contract to circumvent immunity; strangers cannot.

A. No Relationship

The most straightforward way for an intellectual property dispute to arise in the absence of a relationship is for state university employees to use a patented invention, a copyrighted work of authorship, or some other intellectual property without the owner's consent. 9 For example, teachers at a state university might copy portions of copyrighted books to make course packets, or stage a play or perform music without licensing the public performance rights from the copyright owner. 10 Similarly, university researchers might use a process or a product to which someone else claims a patent, 11 or a


10. See Mills Music, Inc. v. Arizona, 591 F.2d 1278 (9th Cir. 1979) (allowing a copyright owner to sue the state for using his song as the theme for the Arizona State Fair). See generally UNITED STATES COPYRIGHT OFFICE, COPYRIGHT LIABILITY OF STATES AND THE ELEVENTH AMENDMENT: A REPORT OF THE REGISTER OF COPYRIGHTS 7-13 (1988) [hereinafter REGISTER'S REPORT] (summarizing fears of copyright owners and publishers that state agencies will freely copy works such as textbooks, music, and computer programs).

11. See Florida Prepaid Postsecondary Educ. Expense Bd. v. College Sav. Bank, 119 S. Ct. 2199 (1999) (involving patent owner's claim that Florida state board set up to administer a college tuition prepayment program infringed its patent on a college financing method); Chew v. California, 893 F.2d 331 (Fed. Cir. 1990) (involving claim against the State of California for appropriating a
state university might use someone else’s trademark, logo, or clever advertising jingle to market university services or products. In all these cases, if the person claiming ownership of the intellectual property—copyright, patent, or trademark—sues the state university in federal court, the latter can interpose an Eleventh Amendment immunity defense to the infringement suit.

Some of these cases may involve intentional infringement. For example, an employee operating with a limited budget might choose to copy a computer program rather than buy it, even when the employee knows copying is unlawful. Similarly, researchers under tight deadlines or with limited funds might deliberately use a patented process without consent. Some commentators even worry that state universities will set up textbook copying mills that routinely duplicate copyrighted books, or establish departments dedicated to identifying and using valuable patents.

However, unintentional infringement presents a far more serious risk. For example, a university might believe in good faith and on legally colorable grounds that it has not infringed. It might claim, for instance, that the patent or copyright is invalid, that the allegedly infringing work or invention is sufficiently different from the copyright or patent, or that the particular use is not legally prohibited.


14. A court can determine the validity of a patent or copyright in an infringement suit. Patents can be declared invalid on numerous grounds, such as that the invention is not patentable subject matter, see 35 U.S.C. § 101 (1994), or does not meet the nonobviousness requirement for patentability, see 35 U.S.C. § 103 (1994), or because patent protection is barred by 35 U.S.C. § 102 (1994). Copyrights can also be invalidated on such grounds as improper subject matter or lack of originality. See 17 U.S.C. § 102 (1996).

15. Copyright rights are subject to numerous categorical exclusions and limitations and to a number of defenses. Patent rights are also limited.
Under these circumstances, state immunity can scuttle any effort to adjudicate the merits of the university’s claim.

It is also possible for a university to infringe without knowing that someone else claims exclusive rights. For example, university researchers might use an invention, unaware that someone else already has a patent. Because patent rights bar independent invention as well as copying, a person can infringe a patent even if the person develops the invention independently and without any knowledge of the pre-existing patent. So too, the university might purchase and use a product that contains patented technology, unaware that the vendor has manufactured and sold the product without authorization from the patent owner. Indeed, some have argued that immunity increases the likelihood that state employees will ignore signs of possible infringement and conduct sloppy investigations.

Finally, there are cases in which the university claims to own the patent, copyright, or other intellectual property right. In these circumstances, someone else seeks to use the university’s intellectual property in the face of a demand from the university to cease such use. Ordinarily, the user can bring a declaratory judgment action to test the claimant’s ownership and obtain a legal determination of whether the use is, in fact, infringing. However, if the claimant is a state university, the user faces a potential Eleventh Amendment barrier to suit. Given that today’s universities are heavily involved in holding and licensing patent portfolios, many courts and commentators see the Eleventh Amendment obstacle to declaratory relief as particularly troubling.


17. See House Patent Hearings, supra note 13, at 56-57, 70 (containing the testimony of William S. Thompson, President, American Intellectual Property Lawyers’ Association and a letter from the Intellectual Property Owners, Inc.). For example, a university might buy from a foreign manufacturer at an unusually low price under conditions that ordinarily signal possible patent infringement. The fear is that the university will ignore the signal.

18. These concerns have prompted some courts to use creative and ques-
B. Pre-Existing Relationships

The second broad category involves intellectual property disputes that arise in the context of a pre-existing relationship. In these cases, the intellectual property owner might be able to contract for use restrictions—an option not available when the appropriator is a stranger. The simplest example of relational appropriation is the transaction between buyer and seller. Suppose a university lawfully purchases a copyrighted textbook or computer program and then makes unauthorized copies for university courses or other university use. If the seller is the copyright owner, then the purchase and sale transaction creates a relationship between the parties that establishes a basis for contractual protection.

More complex relationships present greater risks of appropriation. For example, individual faculty members who regularly consult for private industry are frequently exposed to proprietary information and can use that information in unauthorized ways, particularly if their use is difficult to detect. These risks are especially acute in the context of research collaborations and joint ventures.

Some collaborations are relatively short-term and narrowly focused, designed mainly to develop a specific application, product, or

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19. See, e.g., Genentech, Inc. v. Regents of the Univ. of Cal., 143 F.3d 1446, 1453-54 (Fed. Cir. 1998) (holding that the university waived its immunity and constructively consented to the declaratory judgment suit), vacated and remanded, 119 S. Ct. 2388 (1999); New Star Lasers, Inc. v. Regents of the Univ. of Cal., 63 F. Supp. 2d 1240 (E.D. Calif. 1999) (noting the importance of declaratory relief to the integrity of the patent system and holding that the university waived its immunity by obtaining a patent).

20. See Baldwin, supra note 1, at 639-40. The problems are not limited to the science and technology field. See, e.g., Chavez v. Arte Publico Press, 157 F.3d 282 (5th Cir. 1998) (involving a suit against a state university's publishing house for copyright infringement because the university continued to print a book after termination of the publishing agreement).
process. The firm provides funding as well as information—proprietary and nonproprietary—and shares research personnel. In return, the firm usually negotiates for an assignment of, or exclusive license to, the results of the research effort. The university benefits by obtaining funding for its laboratories, support for graduate students, and opportunities for faculty publication.

Other collaborations are longer term and more broadly conceived, frequently taking the form of university-industry research centers. Participating private firms obtain exclusive rights to commercially profitable intellectual property products, and also—and in some cases more importantly—exposure to cutting-edge ideas and the opportunity to attract and train high quality graduate students. From the university’s perspective, the research center offers a private source of funding that helps compensate for declining government research support.

These different kinds of partnerships between universities and the private sector are an important component of university research these days and are strongly encouraged by federal legislative and regulatory initiatives. Yet they are also fertile ground for intellectual property disputes. For example, when a private firm shares its

21. See Wesley Cohen et al., University-Industry Research Centers in the United States (1994) (reporting the results of a 1991 survey showing that the number of university-industry research centers and the magnitude of the research conducted are both “quite large,” and that these centers are “the principal vehicle for direct industry support of academic science and engineering R&D”).

22. See David C. Mowery, The Roles and Contributions of R & D Collaboration: Matching Policy Goals and Design (visited Mar. 25, 2000) <http://www.house.gov/science/mowery_03-11.htm> [hereinafter House Science Policy Hearings]. This material was prepared for the Hearings of the National Science Policy Study, Committee on Science, U.S. House of Representatives, held on March 11, 1998. It contains the testimony of David C. Mowery, U.C. Berkeley School of Business, noting that in some fields, such as chemical engineering and semiconductors, access to new ideas and high quality graduate students is more important than intellectual property rights.). See also David Blumenthal et al., Relationships Between Academic Institutions and Industry in the Life Sciences—An Industry Survey, 334 New Eng. J. Med. 368, 370 (1996) (discussing how respondent firms involved in university research joint ventures perceived more benefits from access to ideas, knowledge, and talented potential researchers than from specific marketable inventions).

23. See supra notes 4-6 and accompanying text.
proprietary information with university researchers, there is a risk that the university will use the information to its own advantage beyond the scope of the collaboration. Moreover, these arrangements typically provide that private firms assume rights to inventions and other proprietary information products either by assignment or exclusive license, and disputes can arise about the scope of these rights.

III. ELEVENTH AMENDMENT AND SOVEREIGN IMMUNITY IN IP SUITS

In order to determine the impact of the Eleventh Amendment and state sovereign immunity on the various scenarios discussed in Part II, we must first understand in somewhat more detail how sovereign immunity limits intellectual property protection. The following discussion examines enforcement of intellectual property rights first in federal court and then in state court.

A. Enforcement in Federal Court—The Eleventh Amendment

1. Suit against the state university itself

Since its ratification in 1795, the Eleventh Amendment has been construed broadly to preserve state sovereign immunity from suits in federal court brought by private citizens, American Indian tribes, citizens of foreign countries, and even foreign nations. The Eleventh Amendment applies to the state itself and to any of its agencies, including state universities, and it bars suits based on federal or state claims.

24. See House Patent Hearings, supra note 13, at 24-25 (noting Professor Robert Merges's testimony that a state university's immunity may deter private firms from entering into research joint ventures).

25. For a clear overview of Eleventh Amendment law, see ERWIN CHEMERINSKY, FEDERAL JURISDICTION §§ 7.1-.7, at 387-446 (3d ed. 1999).

26. In fact, the applicability of the Eleventh Amendment to state universities is not completely free from doubt, but most courts have found that state universities are arms of the state for sovereign immunity purposes. See id. § 7.4, at 407. The Amendment clearly does not apply, however, to local municipalities or local officials, nor does it extend immunity to suits brought by the United States or by sister states.

27. The Eleventh Amendment also extends to state officials sued for damages or other retroactive relief when the remedy will be paid out of the state treasury. See Edelman v. Jordan, 415 U.S. 651 (1974); CHEMERINSKY, supra
States can waive their Eleventh Amendment immunity by consenting to suit in federal court, just as they can waive sovereign immunity more generally. But any such waiver has to meet the same stringent requirements as waiver of other constitutional rights. It must be voluntary and clearly and unequivocally expressed, and it must specifically encompass suit in federal, not just state, court.

Applying these general principles to the intellectual property context, one might conclude that the Eleventh Amendment stands as an insurmountable obstacle to patent, copyright, or trademark suits brought by private parties against state universities in federal court. But matters are not quite so simple, for Congress has the power to abrogate state immunity under certain conditions. In 1990 and 1992, Congress purported to exercise this power by enacting three bills—collectively known as the “Remedy Clarification Acts”—that expressed a clear congressional intent to abrogate state Eleventh Amendment immunity from private suits enforcing the federal intellectual property statutes. However, at the end of its 1998 Term, the Supreme Court held two of these three statutes unconstitutional. In Florida Prepaid Postsecondary Education Expense Board v. College Savings Bank, the Court struck down the Patent and Plant Variety


28. Thus, while immunity is often referred to as a jurisdictional obstacle, it differs from other jurisdictional defenses in that it can be waived.

29. See CHEMERINSKY, supra note 25, § 7.6, at 432.

30. See id.


32. The Remedy Clarification Acts were Congress’s response to judicial decisions in the late 1980s holding that the federal intellectual property laws were not clear enough to effect an abrogation. See, e.g., Chew v. California, 893 F.2d 331 (Fed. Cir. 1990). These decisions applied the Supreme Court’s demanding standards for clarity established in Atascadero State Hospital v. Scanlon, 473 U.S. 234 (1985).

Protection Remedy Clarification Act, and in *College Savings Bank v. Florida Prepaid Postsecondary Education Expense Board*, the Court struck down the Trademark Remedy Clarification Act insofar as it applies to false advertising claims.

In these two decisions, the Court confirmed—some would say extended—its earlier holding in *Seminole Tribe v. Florida* that Article I does not authorize abrogation by Congress. The Court also relied on its previous decision in *City of Boerne v. Flores* to construe Congress’s abrogation power under Section 5 of the Fourteenth Amendment quite narrowly. In the case of patent rights, the Court concluded that Congress had not identified a sufficiently widespread and pervasive pattern of unconstitutional state infringement to support congressional abrogation under Section 5. In the case of false advertising, the Court held that there was no deprivation of “property” within the meaning of the Fourteenth Amendment on which to base an exercise of enforcement power.

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34. 119 S. Ct. 2219 (1999).
35. 517 U.S. 44, 72-73 (1996) (holding that Congress cannot abrogate a state’s Eleventh Amendment immunity pursuant to an exercise of power under Article I’s Commerce Clause).
36. The Remedy Clarification Acts were adopted before the Court’s decision in *Seminole Tribe* and at a time when it seemed likely that Congress could act under Article I to abrogate Eleventh Amendment immunity. See *Pennsylvania v. Union Gas Co.*, 491 U.S. 1 (1989) (plurality holding that the Commerce Clause conferred abrogation power). Congress relied on three sources of constitutional power: the Copyright and Patent Clause of Article I, § 8, cl. 8; the Commerce Clause of Article I, § 8, cl. 3; and Section 5 of the Fourteenth Amendment. Even after *Seminole Tribe* overruled *Union Gas*, there was still some hope that Congress might have abrogation power under the Copyright and Patent Clause—which was not at issue in *Seminole Tribe*—because of the strong policy in favor of uniformity and federal regulation underlying that clause. However, *Florida Prepaid* put this speculation to rest. See *id.* at 2200.
38. See also *Kimel v. Florida Bd. of Regents*, 120 S. Ct. 631 (2000) (interpreting Congress’s Section 5 abrogation power narrowly to uphold an Eleventh Amendment challenge to applying the Age Discrimination in Employment Act to a state university).
39. See *Florida Prepaid*, 119 S. Ct. at 2207 (“[F]or Congress to invoke § 5, it must identify conduct transgressing the Fourteenth Amendment’s substantive provisions, and must tailor its legislative scheme to remedying or preventing such conduct.”).
40. See *College Sav. Bank*, 119 S. Ct. at 2224-26. In addition, *College Savings Bank* all but eliminated the remaining vestiges of the constructive
Little remains of the Remedy Clarification Acts after these decisions. While the Court did not directly address the Copyright waiver doctrine. See id. at 2230. According to this doctrine, the state implicitly waives its immunity whenever it voluntarily participates in federally regulated activity after Congress clearly conditions such participation on waiver of Eleventh Amendment immunity. See id. The plaintiff in College Savings Bank argued that the State of Florida constructively waived its immunity by selling and advertising a for-profit college savings program in interstate commerce. See id. at 2226. The Supreme Court rejected the argument and in so doing cut back sharply on Congress's power to force waiver by attaching conditions to federal programs. See id. at 2229. If anything remains of constructive waiver after College Savings Bank, it is limited to cases where the federal government purchases waiver with a "gift" or "gratuity." Id. at 2231 (illustrating with the example of waiver attached to receipt of federal highway funds). When the inducement is a federal gift, a state that chooses to retain its immunity merely foregoes an additional benefit, the majority argued, and thus its waiver is voluntary and not "coerced." Id. The state's refusal to waive in College Savings Bank would have resulted in exclusion from otherwise lawful marketing activity, a sanction that made the federal bargain cross the line into coercion. Id. See also Wisconsin Bell, Inc. v. Public Serv. Comm'n, 57 F. Supp. 2d 710 (W.D. Wis. 1999) (refusing to find a constructive waiver on the gift/gratuity theory); New Star Lasers, Inc. v. Regents of the Univ. of Cal., 63 F. Supp. 2d 1240 (E.D. Cal. 1999) (finding a constructive waiver on the gift/gratuity theory).

41. Congress is now considering a bill, the Intellectual Property Protection Restoration Act of 1999, which tries to get around state immunity by using a waiver theory rather than abrogation. See S. 1835, 106th Cong. (1999). This bill conditions a state's receipt of federal intellectual property rights on the state's providing explicit assurance that it will waive its sovereign immunity. However, the waiver is not enforceable in a subsequent action; instead, a state that breaches its assurance forfeits the opportunity to rely on federal law to protect its own intellectual property for a fixed period. The bill's sponsor argues that the waiver satisfies College Savings Bank, 119 S. Ct. 2219 (1999), because the state has no "inherent entitlement" to federal intellectual property rights and can freely choose whether to pay the waiver price in return for the federal benefits. In this view, the grant of federal rights is, in effect, a gift or gratuity, like the grants that Congress makes pursuant to its Spending Clause power. See 145 CONG. REC. S13557 (daily ed. Oct. 29, 1999) (statement of Sen. Leahy).

Whether this waiver approach will work is doubtful. Its constitutionality depends on the Court's classifying federal intellectual property rights as a "gift" and the denial of those rights as nonreceipt of a benefit rather than imposition of a sanction. The classification depends here, as it does in the closely related area of unconstitutional conditions, on how the Court defines the baseline. Given the long history and considerable importance of federal intellectual property rights, it seems likely that the Court will include federal patents and copyrights in the set of baseline entitlements and thus classify their denial as
Remedy Clarification Act or the Trademark Remedy Clarification Act as it applies to trademark infringement, the principles of Florida Prepaid and College Savings Bank would seem to condemn these remaining statutory provisions as well. Thus, a person who wishes unconstitutional coercion. However, the outcome is far from certain.

42. See Chavez v. Arte Publico Press, 204 F.3d 601, 605-608 (5th Cir. 2000) (holding the Copyright Remedy Clarification Act unconstitutional); Rodriguez v. Texas Comm'n on the Arts, 199 F.3d 279, 281 (5th Cir. 2000) (same). In Florida Prepaid, the Court held that Congress’s failure to mention the Just Compensation Clause when it explicitly relied on other constitutional provisions precluded consideration of that clause as a basis for the Patent Remedy Clarification Act. See Florida Prepaid, 119 S. Ct. at 2208 n.7. The same is true of the Trademark and Copyright Remedy Clarification Acts. See also Christina Bohannan & Thomas F. Cotter, When the State Steals Ideas: Is the Abrogation of State Sovereign Immunity from Federal Infringement Claims Constitutional in Light of Seminole Tribe?, 67 FORDHAM L. REV. 1435, 1458-77 (1999) (arguing that the Just Compensation Clause cannot support any of the Remedy Clarification Acts).

Moreover, Congress did no better job documenting state Fourteenth Amendment violations for copyrights and trademarks than it did for patents. Although the House commissioned the Register of Copyrights to conduct a study, the resulting Report hardly documents an extensive pattern of state copyright infringement; indeed, most of those who offered input expressed fear of future infringement and cited few examples of present or past infringement. See Register’s Report, supra note 10. This is also true of testimony received by the House and Senate Committees. This omission is likely to be as fatal to the case under Section 5 for the Trademark and Copyright Remedy Clarification Acts as it was in Florida Prepaid for the Patent Remedy Clarification Act. But see Florida Prepaid, 119 S. Ct. at 2215 n.9 (Stevens, J., dissenting) (noting that Congress’s documentation of state copyright infringement might be sufficient to support Section 5 abrogation under the Florida Prepaid test).

In addition, all of the Remedy Clarification Acts take the same sweeping approach to abrogation, subjecting all states to suit in federal court in all cases. Congress’s failure to make any attempt to tailor the statute’s scope and remedies to instances of arguably constitutional violation doomed the Patent Remedy Clarification Act, see id. at 2210, and is likely to do so for the other acts as well.

Finally, although the precise scope left for the constructive waiver doctrine under the gift/gratuity theory is unclear, it seems unlikely that it would save the Remedy Clarification Acts, especially as the theory was not even mentioned in Florida Prepaid. See generally Genentech, Inc. v. Regents of the Univ. of Cal., 143 F.3d 1446, 1453-54 (Fed. Cir. 1998) (noting that waiver is not based solely on the university’s decision to obtain a patent), vacated and remanded, 119 S. Ct. 2388 (1999). But see New Star Lasers, Inc. v. Regents of the Univ. of Cal., 63 F. Supp. 2d 1240 (E.D. Cal. 1999) (applying the waiver theory to subject a state university to a declaratory judgment suit for patent invalidity when the university obtained the patent). Indeed, there is sufficient
to enforce federal intellectual property rights against a state university cannot sue the university itself in federal court. And in the case of federal patent and copyright claims, a person cannot sue in state court either, because federal courts have exclusive subject matter jurisdiction over those claims.\textsuperscript{43}

2. Suit against state university officers and employees

Even so, an aggrieved party is not entirely without access to federal remedies under current law. In several different contexts, the Supreme Court has allowed suits against state officials on the theory that such suits are not really against the state itself and thus not barred by the Eleventh Amendment.\textsuperscript{44} Three different variations on this strategy are worth considering: (1) a suit directly under the federal patent, copyright, or trademark statute, relying on \textit{Ex parte Young}\textsuperscript{45} to circumvent immunity; (2) a suit under 42 U.S.C. § 1983\textsuperscript{46} based on violations of federal patent, copyright, or trademark law; and (3) a suit under 42 U.S.C. § 1983 for violations of the federal Constitution. The following discussion is not intended to be a thorough parsing of all the complex issues involved. My aim is more modest: to demonstrate that each of these options is risky and that none provides a remedy equivalent to that which could be obtained against a state university in the absence of immunity.\textsuperscript{47}

\textsuperscript{43}See 28 U.S.C. § 1338(a) (2000). Subject matter jurisdiction over trademark infringement claims under the Lanham Act is concurrent, but states can still assert their traditional sovereign immunity against such claims in their own courts. \textit{See} Alden v. Maine, 577 U.S. 706 (1999) (holding that states can assert a sovereign immunity defense even to federal claims brought in state court).

\textsuperscript{44}For a succinct discussion of these exceptions, see CHEMERINSKY, \textit{supra} note 25, at § 7.5.

\textsuperscript{45}209 U.S. 123 (1908).


\textsuperscript{47}Previous commentators have surveyed portions of this legal terrain. \textit{See}, e.g., Bohannan & Cotter, \textit{supra} note 42, at 1511-14; Scott P. Glauberman, \textit{Citizen Suits Against States: The Exclusive Jurisdiction Dilemma}, 45 J. COPYRIGHT SOC’Y USA 63, 78-116 (1997).
a. suit directly under federal IP statutes

A party who employs the first option would bring suit directly against the state officers or employees responsible for the infringement, alleging a claim based on the federal intellectual property statutes. Each of these statutes authorizes private suits for injunctive relief and damages, as well as other remedies. Moreover, the doctrine of *Ex parte Young,* an exception to the Eleventh Amendment, allows suits of this sort against state officials, but only for injunctive and other prospective relief and not for damages. To recover damages, the intellectual property owner must sue state university officers/employees in their individual rather than official capacities. The Eleventh Amendment does not bar a suit for damages against a state official in the official’s individual capacity so long as liability attaches to the official personally and the damages are not paid directly from the state treasury.

There are several problems with this strategy, however. For one thing, suit is only available under the federal intellectual property statutes to the extent the statute in question makes officers/employees liable for acts of infringement committed in the course of their employment. Although the exact scope of officer/employee liability for infringement is not entirely clear, it appears that a corporate employee who commits an act of infringement may be held individually liable, along with the corporation, if the infringement results from an exercise of judgment or discretion in the choice of material. By the same token, an employee will not be held liable simply for executing clearly defined, nondiscretionary duties. Similar principles apply to managing officers who do not

49. See Richard Anderson Photography v. Brown, 852 F.2d 114, 122-23 (4th Cir. 1988) (holding that a state university official can be sued individually for damages for copyright infringement even though the university is immune from suit under the Eleventh Amendment).
50. See CHEMERINSKY, supra note 25, § 7.5.2, at 421-23.
51. See 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12.04[A][3][d] (1999); 5 CHISUM, supra note 16, § 16.06[2].
52. See NIMMER, supra note 51, at 12-93; 5 CHISUM, supra note 16, at 16-258 to 16-259.
participate directly in the infringement: they can be held personally liable only if they act willfully and knowingly to induce or further the infringement.\textsuperscript{54}

Under these principles, it is quite possible that an officer/employee would not be personally liable if a state university established a systematic program of deliberate infringement, such as a textbook copying mill or a new department aimed specifically at appropriating valuable patents, and the officer/employee simply carried out the fixed requirements of the program. On the other hand, a university professor might be personally liable for including copyrighted material in a course packet so long as the choice to do so was the professor’s own.\textsuperscript{55} Personal liability may also attach to a university researcher who uses a patented process, but only if the researcher’s choice to use the particular process was discretionary and informed by knowledge of the patent.

Thus, the statutory claim itself does not reach all instances of infringement. Indeed, the more systematic and deliberate the university’s practices at the highest university level, the less likely it seems that officers and employees would be held individually liable for simply carrying out those practices.\textsuperscript{56}

This is not the only problem with the statutory claim. To see the other difficulties, we must discuss the claim for damages and the claim for injunctive relief separately.

First, consider the damages claim. By the same principles that apply to 42 U.S.C. § 1983, a state officer/employee might enjoy qualified immunity from suit for damages based directly on the

\textsuperscript{54} See NIMMER, supra note 51, at 12-93; 5 CHISUM, supra note 16, at 16-258 to 16-259.

\textsuperscript{55} The university might also be vicariously liable under these circumstances. See NIMMER, supra note 51, § 12.04[A][1]. Universities today try to avoid vicarious liability by establishing clear policies and procedures to guard against this sort of infringement. Professors who infringe in flagrant violation of these policies, however, can be more easily seen as acting on their own initiative and thus more likely to be held personally liable.

\textsuperscript{56} This assumes, of course, that the federal statutes will be interpreted the same way in private and public cases. It is possible that a court might interpret the existing statutes to adopt more expansive rules of employee liability for state institutions. Furthermore, Congress presumably could amend the federal statutes to provide for strict officer/employee liability in these cases, without regard to culpability.
federal intellectual property statutes.\textsuperscript{57} This result seems reasonable, for plaintiffs otherwise could easily frustrate the public policies supporting qualified immunity by suing directly under the federal statute instead of under section 1983.\textsuperscript{58}

Qualified immunity in the section 1983 context requires that the state officer's conduct violate "clearly established statutory or constitutional rights of which a reasonable person would have known."\textsuperscript{59} If this standard also applies to claims directly under the federal statutes, then a damage action would not be effective in all cases. Although a university official could be held liable for willful and knowing infringement, as when the official deliberately copies a copyrighted work or uses a patented invention knowing it is under patent, there would probably be no liability in the large class of potential state university infringements that lack the requisite knowledge or intent. These include situations in which university employees independently invent already patented technology, use a patented process that they learn from others without knowledge of the patent, or buy infringing products from third parties unaware that the product infringes.

To be sure, the federal statute itself will not reach officers/employees in some of these cases entirely apart from qualified immunity. However, the qualified immunity doctrine probably excludes more. For example, qualified immunity—but not the statute itself—might bar damages liability if the defendant has a colorable but erroneous defense to infringement, as when copying might appear to be justified as fair use\textsuperscript{60} or when use of a technology

\textsuperscript{57} See CHEMERINSKY, supra note 25, § 8.6.3.

\textsuperscript{58} Although the Supreme Court has used statutory interpretation to read the immunity defense into section 1983, it has also relied heavily on public policy. Moreover, the Court has recognized qualified immunity in other contexts, such as Bivens suits against federal officers, not covered by section 1983. See Bivens v. Six Unknown Named Agents of Fed. Bureau of Narcotics, 403 U.S. 388 (1971).

\textsuperscript{59} Harlow v. Fitzgerald, 457 U.S. 800, 818 (1982).

\textsuperscript{60} See 17 U.S.C. § 107 (2000). The fair use doctrine incorporates a balancing test that is sufficiently vague to provide at least colorable justifications for many instances of copying.
might appear to be justified on grounds of patent invalidity or non-infringement.61

The other problem with a damage action stems from the fact that the individual, and not the state, is responsible for the damage award. As a result, a party who has suffered loss substantial enough to justify bringing a lawsuit must consider the very real possibility that the defendant has insufficient personal assets to cover the loss. This risk is mitigated to some extent if the state has agreed to indemnify its officials,62 but that depends on whether the state has chosen to do so for the particular acts in question as well as on the scope of the indemnification the state has decided to give.63

Now consider the claim for injunctive relief. The availability of an injunction will do little to make suit against state officers/employees any more attractive than the damages claim alone.64 An injunction, while it corrects the problem for the future,65 does nothing to compensate for past losses and has only a limited deterrent effect on incentives to infringe. With litigation delays and uncertainty over obtaining preliminary injunctive relief,66 a state

61. Just as Congress can amend the federal intellectual property statutes to expand liability, so too Congress should be able to limit the availability of the qualified immunity defense in these cases. Qualified immunity has its roots in the common law and does not have a constitutional pedigree. See CHEMERINSKY, supra note 25, § 8.6.1. Thus, the defense should be amenable to congressional tinkering. I am indebted to symposium participants for alerting me to this possibility.

62. The Eleventh Amendment is not triggered by a state’s decision to indemnify its officers for personal liability despite the fact that the liability is ultimately paid from the state treasury.

63. See, e.g., CHEMERINSKY, supra note 25, § 8.6.1, at 496-97 (noting that indemnification policies “vary enormously among jurisdictions”). Indeed, it could turn out that liability is most likely under current law just where indemnification is least likely, because indemnification agreements often exclude willful and intentional wrongdoing from coverage.

64. See, e.g., Register’s Report, supra note 10, at 6, 13-15 (noting that 11 of 44 public comments received on the immunity issue stressed the inadequacy of injunctive relief, and summarizing the main deficiencies).

65. Some have argued that the state could easily circumvent an injunction against an officer or employee by assigning the infringing tasks to someone else. See id. at 15. However, contempt sanctions also extend to third parties who participate or assist in trying to circumvent an injunction’s binding effect. See, e.g., FED. R. CIV. P. 65(d).

66. When the infringer is a state, it will often be possible to argue that con-
university might reasonably expect to profit significantly from infringement before being enjoined.

Indeed, given the risks and expense of litigation, a rational plaintiff might even conclude that filing suit solely to obtain an injunction is not worth the costs. Plaintiffs cannot use contingency fee arrangements when they seek only injunctive relief, and fee-shifting under the federal copyright, patent, and trademark statutes is usually limited to instances of deliberate, willful, or otherwise culpable conduct. A prospective plaintiff therefore must consider the possibility that the suit will have to be financed out-of-pocket, a risk that could be especially onerous for small firms with few resources to devote to litigation. Moreover, for firms marketing intellectual property with a short shelf life, such as some computer software, the market value remaining by the time the preliminary injunction stage is reached could be so small that the firm would not rationally file suit in the first place if it were limited to injunctive relief.

Hence, the injunction remedy is inadequate standing alone. This means that the availability of a claim for damages is crucial to the efficacy of the statutory remedy. But the damages claim suffers from the shortcomings discussed above.

A final point is worth mentioning. In cases where a university employee cannot be held liable under the usual statutory rules of employee liability, there is a possibility that a court would recognize an implied statutory claim to fill the enforcement gap left by the

67. Fee awards, when otherwise available, are generally considered ancillary relief and permitted in a suit based on Ex parte Young notwithstanding their monetary character. See Hutto v. Finney, 437 U.S. 678, 690-93 (1978).


69. See Register's Report, supra note 10, at 6 (noting that 6 of 44 public comments on the immunity issue worried about whether small companies would have the resources to battle states).
Eleventh Amendment.\textsuperscript{70} For example, if a state university established a textbook copying mill, the Copyright Act itself might not impose personal liability on university officials or employees for their acts in simply carrying out the requirements of the infringing university program. If it also turns out that the statutory remedy against the university employer is worthless because of the Eleventh Amendment, a court might fill the statutory gap by at least authorizing injunctive relief against individual employees.\textsuperscript{71}

There are substantial obstacles to this strategy, however. For one thing, it has to confront the Court's extremely restrictive approach to finding implied statutory claims. Furthermore, \textit{Ex parte Young} cannot be used to supplement enforcement of a federal statute that already has its own detailed enforcement scheme—even when the Eleventh Amendment bars use of that statutory scheme.\textsuperscript{72} Thus,


\textsuperscript{71} In Seminole Tribe, the Supreme Court assumed that an \textit{Ex parte Young} suit for injunctive relief would be available to enforce the intellectual property laws against state actors. See Seminole Tribe, 517 U.S. at 72 n.16. However, the Court did not make clear whether \textit{Ex parte Young} would still be available even in those cases where there was no remedy against the state actor directly under the statute.

\textsuperscript{72} See Seminole Tribe, 517 U.S. at 74 (holding that the \textit{Ex parte Young} exception was not available because Congress intended recourse to the detailed enforcement scheme in the Indian Gaming Regulatory Act rather than suit in federal court); Wisconsin Bell, 57 F. Supp. 2d at 718 (holding that the \textit{Ex parte Young} remedy is not available because Congress provided an alternative remedy, judicial review of state commission action). Indeed, some commentators read \textit{Seminole Tribe} and other recent Supreme Court cases as signaling the possibility that the Court will cut back significantly on the \textit{Ex parte Young} doctrine itself. For more on the \textit{Seminole Tribe} exception to \textit{Ex parte Young}, see CHEMERINSKY, \textit{supra} note 25, § 7.5.3, at 428-29. For a critical analysis of the exception, see generally Jackson, \textit{supra} note 70.

The factors that caused the Court to carve out another exception to \textit{Ex parte Young} in Idaho v. Coeur d'Alene Tribe, 521 U.S. 261, 287-88 (1997), do not seem to apply to the intellectual property field. Because federal jurisdiction is exclusive over patent and copyright infringement claims, there is no state forum that can vindicate the federal interests. Moreover, intellectual property suits always raise questions of federal law, and at least in the case of patent and copyright, Congress has made clear that it strongly favors the sort of uniformity achieved through federal adjudication. Most importantly, patent,
Ex parte Young would not be available to fill enforcement gaps in the federal intellectual property statutes if courts were to find the statutorily prescribed enforcement schemes sufficiently detailed and comprehensive. Finally, even if an implied claim were recognized, intellectual property owners would still face the same practical obstacles to suit discussed above.

b. a section 1983 suit based on IP statutes

The second option relies on 42 U.S.C. § 1983 for authority to seek injunctive relief and damages based on violations of the intellectual property statutes. This option adds something to the first only if section 1983 can be used to provide a cause of action against state officers/employees when the federal statute itself does not.

However, there are serious problems with this strategy. First, it is not at all clear that section 1983 can be used in this way. If a court were to find that the federal patent, copyright, and trademark statutes create “comprehensive enforcement mechanisms” of their own, a section 1983 action could be precluded on the theory that Congress intended the statutes to provide the exclusive mode of recovery.

Second, even if section 1983 were available as a legal matter, the plaintiff would still have to contend with the practical problems to successful litigation discussed under the first option.

c. a section 1983 suit based on the Constitution

If section 1983 cannot be used to enforce the federal statutes, an intellectual property owner could still try to obtain relief against state officers/employees for constitutional violations. If state infringement constitutes a taking of property without just compensation or a deprivation of property without due process, Ex parte Young and section 1983 can be used to enforce the Takings and Due Process Clauses.

73. The federal intellectual property laws do have a variety of special enforcement rules, including rules limiting damages for innocent infringement, rules allowing statutory damages, and special rules regarding attorney’s fees.

74. See Middlesex County Sewerage Auth. v. National Sea Clammers Ass’n, 453 U.S. 1, 20-21 (1981); CHEMERINSKY, supra note 25, § 8.8.
However, there are a number of difficulties with suits of this sort, as well as limitations on available remedies. Moreover, many of the practical difficulties with financing suits for injunctive relief and obtaining damages from impecunious university employees, which are discussed above in connection with statutory enforcement, also apply to constitutional claims.

3. Waiver by contract

To recap the discussion so far, a victim of state university infringement faces major obstacles to using federal law to obtain relief. Because of the Eleventh Amendment, the university itself cannot be sued. There are strategies for obtaining relief directly from university officers and employees responsible for the infringement, but each such strategy is plagued with substantial legal and practical risks.

75. See generally Bohannan & Cotter, supra note 42 (discussing some of these issues). Even so, a prevailing plaintiff might have a better chance of obtaining attorney's fees in a § 1983 suit based on the Constitution than in a suit based directly on the federal intellectual property statutes because § 1983 fee awards are not limited to deliberate or culpable conduct. See 42 U.S.C. § 1988.

76. The discussion in the text focuses on situations in which an intellectual property owner sues a state university for infringement. The Eleventh Amendment also limits remedies in other situations. For example, if the university claims the intellectual property right and sues first for infringement, the Eleventh Amendment might bar a counterclaim for invalidity or other affirmative relief. See Regents of the Univ. of Cal. v. Eli Lilly & Co., 777 F. Supp. 779, 786 (N.D. Cal. 1991) (barring interference counterclaims as affirmative relief); Woelffer v. Happy States of Am., Inc., 626 F. Supp. 499, 502-03 (N.D. Ill. 1985) (setting out the general rule that filing suit waives the Eleventh Amendment only for counterclaims or defenses that arise from the same events as the infringement action and that diminish or defeat the state's recovery). As a second example, suppose that a private party wishes to use a patented invention owned by a state university and the university threatens to sue but does not file. The Eleventh Amendment is likely to preclude a suit by the private party for declaratory relief—although a few courts have refused to enforce the Eleventh Amendment in these circumstances by relying on some type of waiver theory. See, e.g., Genentech, Inc. v. Regents of the Univ. of Cal., 143 F.3d 1446, 1453-54 (Fed. Cir. 1998), vacated and remanded, 119 S. Ct. 2388 (1999); New Star Lasers, Inc. v. Regents of the Univ. of Cal., 63 F. Supp. 2d 1240 (E.D. Cal. 1999). But see Genentech, Inc. v. Regents of the Univ. of Cal., No. 97-1099, 96-1361, 1999 U.S. App. LEXIS 20198, at *1 (Fed. Cir. Aug. 26, 1999) (ordering additional briefing on the waiver theory in light of
An intellectual property owner can avoid all these problems, however, if the state waives its Eleventh Amendment immunity to suit for infringement. Under these circumstances, a state university could be sued directly for violation of the federal intellectual property statutes to the same extent as a private university.

The difficulty is that states have not generally waived Eleventh Amendment immunity in the intellectual property field. Nevertheless, the absence of a general waiver should not prevent an intellectual property owner from securing contractual waivers in connection with particular transactions. If the owner were able to obtain the express and unambiguous consent of a properly authorized university official waiving the university's Eleventh Amendment immunity, then the owner might be able to enforce the waiver against a defense of immunity raised in a subsequent copyright, patent, or trademark suit.

This strategy is feasible, however, only if the infringement takes place in a relational context, for only then can a contractual waiver be obtained in advance. For example, if a firm sells or licenses its intellectual property to the state university, the firm could include in the sales or licensing agreement an explicit clause making clear that the university waives its Eleventh Amendment immunity for disputes arising from the sale or license. Firms could also insist on similar provisions in contracts creating university-industry cooperative ventures.

To employ this strategy, the intellectual property owner must be able to show that the university has the authority under state law to waive the state's immunity and that the particular university official executing the contract has the power to do so. In *Innes v. Kansas State University*, the court held that a state university had validly waived its Eleventh Amendment immunity to an action by a debtor to discharge student loans. The university had explicitly agreed to the waiver in its contract to participate in the federal student loan

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77. To be valid, the contract must clearly and unambiguously specify waiver. *See Atascadero State Hosp. v. Scanlon*, 473 U.S. 234 (1985) (requiring clear and unambiguous waiver of immunity in state statute or as condition of participation in federal program).

78. 184 F.3d 1275 (10th Cir. 1999).
program. The court found that a Kansas statute specifically authorizing state universities to enter into such contracts conferred the requisite authority on the university.

Consistent with Innes, it might be enough if a state statute specifically authorizes the state university to enter into contracts with private firms dealing with intellectual property and also empowers the university to discharge all the obligations of its contracts. This approach makes the effectiveness of waiver depend on the particular state's statutes, but many states have relatively broad statutes that give considerable power to state universities to enter into intellectual property transactions. If the university has the power to waive immunity under such a statute, then some university official will certainly have the authority to act for the university in that regard.

79. See id. at 1282-84.
80. See id. at 1281-82.
81. Even so, Innes involved an explicit waiver in connection with a federal program, whereas my situation involves waiver in connection with a private contractual arrangement. There might still be some doubt whether a state can waive its immunity by contract with a private party. All the reported instances of state waiver of which I am aware involve express waiver in a state statute or constitutional provision or waiver exacted by the federal government in connection with a federal program. See Atascadero, 473 U.S. at 238 n.1 ("A State may effectuate a waiver of its constitutional immunity by a state statute or constitutional provision, or by otherwise waiving its immunity to suit in the context of a particular federal program."). None involves a contractual waiver given to a private party for that party's private benefit. However, I can see no reason to preclude waiver in these situations when the waiver reflects an informed and voluntary policy choice by authorized state officials. Indeed, a refusal to enforce contractual waivers under these circumstances could well be detrimental to state interests in the long run by undermining the state’s ability to credibly bind itself to beneficial contracts ex ante. Thus, one might easily enlist the policy of respect for state sovereignty that underlies the Eleventh Amendment itself to support enforcement of all contractual waivers.

82. See, e.g., MASS. GEN. LAWS ANN. ch. 75, § 14A (West 1996) (granting broad power to the Trustees of the University of Massachusetts to enter into transactions regarding intellectual property); see also Candela Corp. v. Regents of the Univ. of Cal., 976 F. Supp. 90 (D. Mass. 1997) (holding that a California constitutional provision granting virtual plenary power over university affairs to the Regents, including the power to sue and be sued, has the effect of delegating to the Regents the power to waive Eleventh Amendment immunity).

83. See Innes, 184 F.3d at 1284 n.5 (noting that none of the parties argued that the official executing the contract did not have authority to do so). Nonetheless, it would be advisable to use a high ranking university official, espe-
B. Enforcement in State Court—State Sovereign Immunity

The Eleventh Amendment applies only to suits brought in federal court. However, a patent or copyright owner cannot avoid Eleventh Amendment problems by the simple expedient of suing in state court, because only the federal courts have subject matter jurisdiction over federal patent and copyright claims. Moreover, Congress cannot circumvent the immunity obstacle merely by making federal subject matter jurisdiction concurrent with state court. Such a move would simply convert the immunity issue from one involving the Eleventh Amendment to one involving the state's sovereign immunity law.

Thus, intellectual property owners receive no benefit from choosing a state forum if they wish to enforce federal intellectual property rights. This still leaves the possibility of using state law instead, but there are substantial problems with state remedies as well.

The relevant state claims are usually narrower in scope than their federal counterparts. For example, while state trade secret law protects inventions within the general scope of patentable subject matter, it requires that the owner take special efforts to keep the information secret. Moreover, trade secret law protects secrets only


85. Furthermore, Congress faces the same difficulties abrogating state sovereign immunity in state court as it does abrogating Eleventh Amendment immunity in federal court. In *Alden v. Maine*, 119 S. Ct. 2240, 2246 (1999), the Supreme Court held that Congress lacks power under Article I to abrogate a state's sovereign immunity to suits for damages in state court, just as it does for federal court. The Court reasoned that the Eleventh Amendment enforces a more fundamental constitutional principle of state sovereign immunity, a principle that was essential to the original constitutional design and that limits Congress's power to abrogate state immunity in both state and federal court. *See id.* at 2247-66. At the same time, the Court noted that Congress can abrogate immunity in state court through a proper exercise of its enforcement powers under Section 5 of the Fourteenth Amendment. *See id.* at 2267.

86. In the text, I focus on the limitations of state substantive law. However, there are other potential disadvantages to a state forum. For example, state procedure can be less favorable to plaintiffs, and state court judges may lack the expertise of the federal judiciary, especially the Federal Circuit Court of Appeals.
against wrongful appropriation, which usually requires breach of a
duty of confidentiality owed to the trade secret owner. This restric-
tion means that it is perfectly lawful to use a trade secret if it is re-
verse-engineered or independently invented—even when this same
use would constitute infringement under patent law.\footnote{87}

The state remedies that substitute for federal copyright are even
more limited. The traditional common law copyright tort is no
longer available for copyrightable works.\footnote{88} Other possible claims,
such as reverse passing off or trade dress protection, have yet to be
tested under the law of most states, and in their federal guise, offer
much more limited protection than federal copyright.\footnote{89}

The picture is a bit rosier for trademark law but here too state
substitutes fall short.\footnote{90} In particular, state trademark law does not
confer the nationwide rights that trademark owners enjoy by regis-
tering their marks on the Principal Register of the federal Lanham
Act.\footnote{91} Nor does state trademark law offer the federal benefit of in-
contestability,\footnote{92} or in many states, the advantages of an antidilution
claim.\footnote{93}

\footnote{87. See Robert G. Bone, A New Look at Trade Secret Law: Doctrine in
Search of Justification, 86 CAL. L. REV. 241, 247-51 (1998) (summarizing cur-
cent trade secret doctrine).}
copyright in original works of authorship fixed in a tangible medium of ex-
pression).}
\footnote{89. Most reverse passing off and trade dress claims are decided under sec-
passing off provides relief when the defendant passes off plaintiff’s product as
its own. The tort has been applied occasionally to cases in which defendant
takes plaintiff’s otherwise copyrightable work without crediting plaintiff’s
authorship. \textit{See} Smith v. Montoro, 648 F.2d 602 (9th Cir. 1981). Sometimes
courts stretch trade dress theory to provide protection resembling copyright,
but these cases are not routine and are quite controversial. Although there is
no obvious impediment to bringing trade dress and reverse passing off cases
under state law, the fact that most of these cases have been decided under sec-
tion 43(a) means there is little state law precedent to follow.}
\footnote{90. Since Lanham Act claims can be brought in state court, recourse to state
trademark law would be necessary only if state sovereign immunity barred
suits under federal law but not under state law.}
\footnote{91. See 15 U.S.C. § 1072.}
\footnote{92. See id. §§ 1065, 1115(b).}
\footnote{93. Partly because only about one-half of the states have antidilution stat-
utes, Congress in 1996 adopted a federal antidilution remedy. \textit{See} Federal
Nevertheless, there are three ways that an intellectual property owner might try to obtain broader relief against state universities under state law. The first possibility is to bring a claim for misappropriation.\textsuperscript{94} Where it applies, the tort of misappropriation gives relief for improper appropriation of commercially valuable information.\textsuperscript{95} Although some courts require a relationship of direct competition between the plaintiff and the defendant,\textsuperscript{96} most courts shun formal rules and use the tort to grant relief on policy grounds when relief is not otherwise available under more conventional legal theories.\textsuperscript{97} As such, the misappropriation tort would seem ideally suited to fill the gaps in patent and copyright protection caused by state sovereign immunity.

But there is a problem with using misappropriation. The closer the tort approaches patent or copyright, the more likely it will be preempted by the Patent or Copyright Acts.\textsuperscript{98} Preemption is hardly a certainty, even if the rights created by the misappropriation tort duplicate federal law. Since preemption in the intellectual property field turns on congressional intent, one might argue that Congress did not intend to preempt state law when that law is used to fill gaps that Congress meant to fill but could not because of Eleventh Amendment obstacles. This is a far cry from the typical preemption scenario in which state law either substitutes for federal law or protects subject matter that Congress meant to leave in the public domain.\textsuperscript{99} Even so, the preemption risk remains substantial.\textsuperscript{100}

\begin{footnotesize}
\begin{enumerate}
\item The famous case of \textit{International News Service v. Associated Press}, 248 U.S. 215 (1918), is usually credited with giving birth to the tort of misappropriation, and some, but not all, states have followed its lead.
\item \textit{See id.} at 245. The misappropriation tort is quite controversial, and not clearly available in all states, especially in a broad form.
\item \textit{See, e.g.}, United States Golf Ass’n v. St. Andrews Sys., 749 F.2d 1028 (3d Cir. 1984).
\item \textit{See Board of Trade v. Dow Jones & Co.}, 456 N.E.2d 84, 90 (Ill. 1983) (rejecting a requirement of competitive injury).
\item \textit{See, e.g.}, Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141 (1989). \textit{See also} Jacob’s Wind Elec. Co. v. Florida Dep’t of Transp., 626 So. 2d 1333, 1336-37 (Fla. 1993) (using a similar argument to find no preemption).
\item In fact, one might have a more difficult time arguing against preemption
\end{enumerate}
\end{footnotesize}
A second possibility is to bring an inverse condemnation action. Using this approach, the intellectual property owner would argue that the state has, in effect, taken the owner's intellectual property for a public purpose without providing just compensation. However, a number of doctrinal complexities limit the availability of relief on this theory. For one thing, the state's waiver of sovereign immunity to condemnation proceedings must be construed to extend to infringement of intellectual property rights. In addition, the infringement must be serious enough to qualify as a "taking" of property rather than just a permissible exercise of state regulatory power. Furthermore, the taking must be an authorized action of the state so that it qualifies as a government taking rather than simply an act of infringement conducted by an individual state officer or employee.

The third possibility is likely to be the most promising of the three, since it gives broader control to the intellectual property owner. The owner can spell out as express contract terms the rights he would have had under federal law but for the Eleventh Amendment, and then use state contract law to enforce those rights against

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for copyright than for patent. The statutory conditions for preemption set out in section 301 of the Copyright Act would all seem to be satisfied by a misappropriation tort that provides protection equivalent to federal copyright law. By contrast, patent preemption is a matter of judge-made law and might be more flexible as a result.

101. See, e.g., Jacobs Wind, 626 So. 2d at 1335-37 (holding that a patent holder may assert a takings claim in state court for state infringement of his federal patent rights).

102. See generally Bohannan & Cotter, supra note 42, at 1461-63 (discussing the difficulty of applying "takings" precedent to intellectual property).

103. Cf. A.C. Aukerman Co. v. State, 902 S.W.2d 576, 578-79 (Tex. Ct. App. 1995) (holding that the benefits received by the state from hiring contractors who infringed a patent did not render the infringement a "taking" because there was no direct participation in, or intentional act of, infringement by the state); Bohannan & Cotter, supra note 42, at 1475-77 (discussing the authorization issue in the context of Fifth Amendment takings claims). In addition, it is necessary that the inverse condemnation claim based on a taking of property in the form of a patent or copyright not be preempted by the federal intellectual property statutes. See, e.g., Jacobs Wind, 626 So. 2d at 1335-37 (holding that state taking and conversion claims are not preempted). But see id. at 1337-38 (Harding, J., dissenting) (arguing that the state claims essentially seek to recover for patent infringement and therefore are preempted).
This strategy has some advantages over misappropriation and inverse condemnation. First, all states recognize breach of contract claims, whereas many do not recognize the tort of misappropriation and others impose strict conditions on inverse condemnation suits. Second, the contract approach gives the intellectual property owner flexibility to define the scope of protection without having to squeeze into existing legal pigeonholes. Third, most states have waived sovereign immunity to breach of contract claims in state court. Fourth, state contract law has a much better chance of surviving preemption than misappropriation because a contract binds only identifiable persons and not the world at large. The preemption analysis is more complicated, to be sure, but the contract alternative should still be quite attractive.

C. Summary

This brief survey of available remedies under federal and state law highlights two important points. First, those judicial remedies that survive the Eleventh Amendment and state sovereign immunity offer less certain and more limited protection than the federal patent, copyright, and trademark laws. The options available for enforcing federal law against university officials/employees are riddled with problems. Traditional state intellectual property law theories are also quite limited, and the broader tort of misappropriation faces a substantial risk of preemption. State inverse condemnation remedies are more promising, but they too are quite uncertain under current law. A contract-based strategy is probably the best option since a

104. This alternative would be necessary only if contractual waiver of Eleventh Amendment immunity was not feasible, as waiver is superior because it allows enforcement of federal rights. See supra notes 77-83 and accompanying text.

105. This assumes that the jurisdiction’s contract law gives sophisticated parties broad latitude to define substantive rights and duties and to specify remedies available in the event of breach. To the extent state law limits the parties’ freedom to contract, this strategy might lose some of its attractiveness.

106. Although the state defendant might still argue that the state’s waiver should not extend to contract claims that essentially duplicate federal rights. Also, when states waive sovereign immunity to contract claims, they have the power to funnel the suits into a special state forum, such as a court of claims.

contractual waiver or a contractual specification of exclusive rights offers protection against the state itself comparable to federal intellectual property law.

Second, the superiority of the contract strategy should encourage firms at the margin to limit disclosure to relational settings where contract and trade secret law can be employed. These incentives, in turn, will encourage greater reliance on secrecy to protect against uncontrolled disclosure. As discussed at length in the following section, this shift in strategy toward secrecy can be costly from a social point of view.

IV. THE IMPACT AND COSTS OF STATE IMMUNITY IN THE IP FIELD

A. The Simple Story

The critics of state immunity tell a relatively simple story about the probable effects of a broad Eleventh Amendment in the intellectual property field. According to this story, federal and state remedies are likely to be so weak that state officials will find it worthwhile to infringe intellectual property rights routinely. Infringement may not be deliberate at first; state officials might simply take less care in verifying ownership rights. But as the practice becomes more prevalent, attitudes and norms will change, eventually making deliberate infringement an acceptable practice.

With a substantial increase in state infringement, creators who market mostly to state agencies or institutions will earn less from their creations and, as a result, will invest less in creative activity, thereby dampening incentives to create. In this way, state immunity runs the risk of reproducing the perverse equilibrium of the Prisoner’s Dilemma, in which hardly anyone creates new works or inventions for fear that others will simply copy without paying. For example, those who write and publish textbooks for schools and universities will be less inclined to do so if widespread copying deprives


them of a large segment of their market. So too for those who make films for state prisons and other institutions and those who invent devices marketed mainly to states.

Furthermore, the critics argue that widespread state infringement will chill the incentives of private firms to enter into cooperative research ventures with state universities. A private firm collaborating with a state university faces the risk that the university will misappropriate the firm's valuable intellectual property and use it beyond the terms of the cooperative arrangement. As a result, firms will choose to deal with private universities instead, since private universities do not have immunity. Not only will this cut off private sources of research funding for state universities, but it may also lead to less efficient collaborations—particularly if the state university has more to offer the research venture.

B. The More Complex Story

Although superficially compelling, the simple story is incomplete in several important respects. In fact, it is not clear that state universities will infringe intellectual property rights on a wholesale basis in the absence of legal protection. There is very little empirical data to support this prediction. Even the harshest critics of state immunity have difficulty finding concrete examples of state infringement, a fact that condemned the Patent Remedy Clarification Act in Florida Prepaid.

110. See Register's Report, supra note 10, at 7.
111. See, e.g., Chew v. California, 893 F.2d 331 (Fed. Cir. 1990).
112. See House Patent Hearings, supra note 13, at 34.
113. The critics tend to focus on the future, now that Eleventh Amendment immunity is clearly established for the intellectual property field. See, e.g., 145 CONG. REC. S13557 (daily ed. Oct. 29, 1999) (statement of Sen. Leahy) (noting that “most states already respect intellectual property rights and will seldom find themselves in infringement suits” but that there is still cause for concern in the future, especially after Florida Prepaid).
114. 119 S. Ct. 2199 (1999); see supra notes 31-33, 39, 42 and accompanying text. This does not necessarily mean that states in fact rarely infringe. It might just mean that it is extremely difficult to detect those infringements that do occur. Nevertheless, the paucity of examples in the congressional record is striking given the obvious incentives of the strong pro-intellectual property lobby to find as many examples as possible.
More importantly, the simple story is incomplete as a theoretical matter. Among other things, it ignores the strategic dimension of the interaction between state universities and private parties. Because state universities expect to deal with private creators, publishers, and distributors on a repeat basis, informal mechanisms such as reputation can substitute for legal sanctions as a deterrent to infringement. Moreover, private parties will respond to a high risk of infringement by changing their investment and marketing strategies. These strategic responses, can generate costs of their own, even though they keep the incidence of actual infringement in check. In equilibrium, there might be little infringement, yet greater inefficiency in the creative process.

1. Informal compliance mechanisms

The supporters of broad Eleventh Amendment immunity assume that states will honor intellectual property rights without the pressure of legal sanction. But the reasons they give for this assumption are not convincing. It is not enough to suppose that state actors are just more law-abiding than the average citizen. Although it is conceivable that officials internalize a special role morality as government agents with a public trust, it is unlikely that faculty and staff at state universities see themselves as occupying a governmental role or feel especially obligated by virtue of holding a public office.

115. Or at least that the states, as quasi-independent sovereigns, should be given a chance to do so before Congress abrogates their immunity. See Alden v. Maine, 119 S. Ct. 2240, 2266 (1999) (relying on the “good faith of the States” to safeguard the supremacy of federal law).

116. This assumes, of course, that the available legal remedies against officers and employees will be insufficient to deter infringement. This is a reasonable assumption given the legal and practical obstacles to suit. Indeed, individual liability is so difficult to establish for innocent infringement that not many suits will be brought in those cases, and employees are not likely to be aware of all the liability risks in any event unless the university makes a special effort to inform them.

117. Eleventh Amendment immunity does not make appropriation any more lawful just because it is done by the state. Prohibitions against patent and copyright infringement retain their strength as legal norms even if they cannot be enforced. This argument assumes, therefore, that a state official will not infringe simply out of respect for the law entirely apart from any possible sanction.
Moreover, university officials/employees will not worry much about the morality of infringement if they believe that their use is justified even when it is not. The intellectual property laws are sufficiently open-ended to allow considerable room for this sort of mistake or self-delusion. For example, state university researchers eager to move forward with a project and wishing to avoid expensive royalties might not bother to check whether a particular technology is under patent, or they might persuade themselves that their modifications are enough to avoid infringement. Similarly, in the absence of strict university rules, teachers could easily convince themselves that the educational mission justifies the copying of portions of articles and books for inclusion in a course packet. Moreover, the university bureaucracy as a whole is not likely to take affirmative steps to stop these practices if the university itself faces no substantial risk of liability for damages.

Thus, to rely on voluntary compliance, one must have a more convincing reason for state universities to comply than simple habit or role morality. In fact, there is such a reason, but it applies only under certain conditions. A university should be willing to set strict rules against infringement and police compliance if it stands to gain substantially in the long run from not infringing intellectual property rights in the short term.1

To see how this works, let us assume that intellectual property owners have no legal recourse whatsoever against state universities—not even ordinary contract or trade secret remedies. Consider a private firm (call it "X") that is interested in selling books, licensing a patent, transacting in some other form of intellectual property, or entering into some kind of research collaboration with a state university (call it "U"). Firm X knows that it has no legal remedy if the university buys a few books and copies the rest, refuses to pay for use of a patent after learning from the firm how to practice it

118. There may be other reasons as well. In his contribution to this Symposium, Professor Peter Menell discusses a number of different institutional constraints that, in his view, make the likelihood of state infringement quite low. I focus on informal sanctions and secrecy strategies in this Article because I believe these are likely to play a central role in university-industry interaction. However, Professor Menell is certainly correct that there are other institutional factors that discourage infringement.
efficiently, or appropriates—and even publicly discloses—firm secrets revealed in a joint venture.

What will firm X do under these circumstances? Suppose X has a choice between transacting with U or transacting with a private university that does not have immunity. If the firm can estimate its expected future loss from U’s possible infringement, the firm can demand a higher payment from U to compensate for that loss. If U is willing to pay this higher price, then X and U can enter into the transaction.

U’s immunity, however, creates problems. If the expected loss to firm X is substantially higher than the expected gain to U from appropriation, then U might not be willing to pay X’s price, and no deal would be possible. For example, revealing information to U’s researchers in the absence of legal protection increases the risk that the information will spread to X’s competitors and others not associated with U. Firm X will demand a higher price to compensate for this additional risk, but U might not be willing to pay that higher price if it cannot internalize all the benefits of this uncontrolled diffusion.

Furthermore, valuing intellectual property is notoriously difficult, partly due to the uncertainty associated with predicting future uses.\footnote{119} If X cannot rely on legal remedies to limit future use by U, then X must anticipate all possible uses—a task that makes X’s valuation problem and expected loss calculations particularly complicated. Given these complexities, X might prefer to transact with a private university instead.\footnote{120}

Suppose these obstacles are serious enough so that firms like X would systematically shun state universities in favor of private institutions. Under these circumstances, state universities would be better off if they could make credible commitments to respect


120. These incentives depend of course on the profitability of transacting with U and on X’s beliefs about the likelihood that U will in fact infringe. For example, if U had a much larger student body than the average private university, or had superior research capabilities, and X believed that U was not very likely to infringe, then X might find it more profitable to transact with U despite the additional uncertainty.
intellectual property rights. To be sure, this is not true for all trans-
actions. For example, a university that cannot buy books from a
publisher might be able to acquire copies elsewhere—from private
university bookstores perhaps—and simply copy the copies. As long
as the search costs of locating the first copy are not too high, the uni-
versity would be better off infringing, and as a result would have no
interest in committing to noninfringement just to be able to buy from
the publisher. However, there are many situations where universities
would want to make credible commitments to respect intellectual
property rights if only they could.\(^2\)

The problem for the university is that it cannot credibly commit
in advance. No matter how strongly U promises before the transac-
tion not to infringe, it will have powerful incentives as a rational ac-
tor to break its promise once it has access to X’s intellectual prop-
erty. X is aware of U’s incentives, so X will not credit U’s promise.
If intellectual property laws could be enforced against U, then the
threat of legal sanction would make U’s commitment credible, but
we have assumed that immunity makes enforcement impossible.\(^2\)

It is well known in the game theory literature that parties can
solve these commitment problems if they engage in repeated interac-
tion.\(^2\) State universities repeatedly transact with intellectual prop-
erty owners and with private firms interested in entering into re-
search collaborations, and there is no definite end to these
transactions. Under these circumstances, private firms like X can

\(^1\) Although the university can learn patented technology from the Patent
Office filing, it can acquire the know-how necessary to practice the patent effi-
ciently only from the firm.

\(^2\) One might wonder why under these circumstances state universities do
not simply lobby the state legislature to abrogate their immunity. One reason
might be that they do not want to forego the benefits of being able to infringe,
or perhaps they see no need for a political solution because informal mech-
nisms do an adequate job of supporting credible commitments. In addition,
public choice problems can frustrate political solutions of this kind.

\(^3\) See, e.g., ERIC RASMUSEN, GAMES AND INFORMATION: AN
INTRODUCTION TO GAME THEORY 121-31, 154-56 (1989). There is also a vo-
luminous legal literature discussing the creation and enforcement of informal
norms that relies in large part on iterated, repeat play games. Indeed, my point
can be recast in terms of norm creation. I argue, in effect, that a noninfringe-
ment norm is likely to evolve in the repeat play environment of university-
industry interaction.
induce state universities like U to comply with intellectual property laws by threatening never to deal with the university again if it infringes once.\textsuperscript{124} Provided the university does not discount the future too much, it will never infringe because the long-term cost of losing all future transactions will be greater than the short-term benefit of cheating in a particular case.

Reputation mechanisms can also bond credible commitments not to infringe.\textsuperscript{125} State universities should have incentives to develop and maintain reputations for respecting intellectual property rights. Suppose firm X believes that some state universities prefer not to infringe, but does not know whether U is one of those noninfringing types. Under these circumstances, U might try to establish a reputation as a noninfringing type in order to acquire the benefits of engaging in transactions with X at a lower cost. U builds its reputation by paying X's higher price at first, when X does not know whether U will infringe, and then foregoing the temptation to infringe ex post. So long as U can build reputation capital in this way and expects to lose much of that capital if it cheats, reputation can serve as a bonding mechanism and make U's commitment credible in the absence of law.

These rosy scenarios depend on a number of conditions. For example, it seems reasonable, though hardly certain, that firms will tend to favor private universities when state universities systematically infringe. Moreover, the number of state universities and private firms interested in transacting is probably small enough to assure that information about cheating is widely distributed.\textsuperscript{126}

\textsuperscript{124} This is the so-called "Grim Strategy," and it is not the only strategy that can work. See id. at 123-25.

\textsuperscript{125} Technically, a reputation mechanism works even when the number of interactions has a definite and known end. For indefinitely repeated games, it is the threat of informal sanction that induces compliance; for reputation games, it is the benefit of reputational bonding and the cost of losing reputation capital. See id. at 121-31.

\textsuperscript{126} Assuming that information is effectively distributed throughout the market, reputation mechanisms might also help with compliance in those situations, like the textbook copying example, where the university is otherwise better off being able to infringe. Firms are not likely to make fine distinctions among different infringement cases, so that a university can be sure of preserving its reputation capital when it matters only if it resists the temptation to infringe in \textit{all} cases.
However, informal sanctions and reputation work well only to the extent that cheating is easy to detect. In our case, this means that the legal definition of infringement must be clear enough so that any instance of infringement can be easily observed and characterized as such without disagreement. But the patent, copyright, and trademark laws are hardly this clear cut. For example, substantial similarity and fair use standards in copyright law are sufficiently opaque to defy objective application. Moreover, reasonable minds can disagree about whether an invention is sufficiently similar to a patent to infringe or whether likelihood of confusion exists to support trademark infringement. It is possible, therefore, that a university might reasonably believe that its actions do not constitute infringement while a firm reasonably believes the opposite. This potential for uncertainty and disagreement undermines the threat value of informal sanctions and the ability of universities to build and preserve favorable reputations.

2. Strategic responses to infringement risks

Thus, we cannot be certain that informal mechanisms will deter all infringement by state universities. Let us assume then that informal mechanisms work imperfectly, so a substantial risk of infringement remains. Firms like X will respond by adjusting their behavior to manage the risk in a way that maximizes the firm’s profits. Anticipating these strategic responses is crucial to predicting the frequency of infringement and the social costs of state immunity.

One possible response is for firms to shun state universities altogether and deal only with private institutions. The threat to do so supported the optimal compliance equilibrium in the previous section. If that equilibrium cannot be sustained, it seems reasonable to

128. See 17 U.S.C. § 107 (2000); see also supra note 60 and accompanying text.
suppose that firms will transact with private universities more frequently.

Even so, it is extremely unlikely that firms will deal with private universities exclusively. The business opportunities at state universities are simply too lucrative to pass up all the time. For example, many state universities with large student bodies offer huge potential markets for books and other copyrighted course materials. Moreover, preeminent state research institutions, like the University of California at Berkeley, have top-notch professors, high quality graduate students, and first-rate facilities that make them extremely attractive prospects for joint research ventures and licensing opportunities.131

Thus, one would expect private firms to devise strategies that reduce the risk of infringement and make it economically feasible to transact with state universities some of the time. One such strategy is to keep valuable intellectual property secret and to contract for legal protection. In Part III above, we saw how a contract might be used to extract an enforceable waiver of Eleventh Amendment immunity or an enforceable promise not to infringe.132 Once the firm obtains the waiver or promise, it can disclose its intellectual property to the university, confident that it has legal protection similar to that against private institutions.

Insofar as this secrecy strategy is attractive, it will encourage a greater number of firms to keep more of their information secret for longer periods of time. For example, firm X that has developed a new and patentable genetic engineering technology might choose secrecy over patent protection if X anticipates a future joint venture with a state university aimed at investigating new applications for the technology.133 Similarly, if X anticipates a research collaboration to develop a computer program, it might be inclined to keep the

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131. See Baldwin, supra note 1, at 633-37 (showing that at least 19 of the top 33 universities in terms of private industry research support are state institutions).

132. See supra notes 77-83, 104-07 and accompanying text.

133. Patent and trade secret are mutually exclusive alternatives. To obtain a patent, the firm must disclose its invention to the public, which eliminates any claim to secrecy. Alternatively, the firm might try to keep the information secret until it negotiates the contract with the university and then seek a patent if it is not barred by 35 U.S.C. § 102. See 35 U.S.C. § 102(b), (g) (1994).
program secret until the collaboration is finalized. So too for sales of textbooks to state universities. Without copyright protection, firm X might delay publication and keep the book secret until it is able to negotiate sales contracts—ideally long-term contracts—with at least the largest state institutions.

Secrecy is also likely to become more important with respect to the creative products of a joint venture or research collaboration. If X fears that state universities other than U will appropriate the products of the X-U collaboration, X will be inclined to insist on secrecy for a longer period of time. This is especially true if the research results could be the basis for future collaborations with state universities other than U. Because secrecy enhances the value X obtains from the collaboration, X should be willing to pay more for secrecy, and therefore U has an incentive to agree to those terms.

The problem with a secrecy strategy from a public policy perspective is that it can produce high costs.\textsuperscript{134} For instance, secrecy prevents others from learning the ideas and improving on them. It also encourages wasteful duplication of research effort by withholding knowledge that the race to invent has been won. Moreover, secrecy can artificially skew research incentives toward inventions that are difficult to reverse engineer, such as processes or methods that can be commercially exploited while hidden from public view. These effects are especially troubling in the case of patentable inventions, such as genetic engineering technology, because secrecy frustrates the strong federal patent policy favoring early public disclosure of valuable inventions.\textsuperscript{135}

In addition, a secrecy strategy can substantially increase the transaction costs of negotiating a contract between firm X and university U.\textsuperscript{136} Information has the property of nonexcludability: it is difficult for the owner of information to exclude others from access to it. Once someone is exposed to information, there is no way to force that person to unlearn it. This nonexcludability property makes it especially difficult to negotiate contracts that involve

\textsuperscript{134} See, e.g., Bone, supra note 87, at 264-81 (analyzing the costs of secrecy).


information transfers because of a problem commonly known as Arrow’s Information Paradox.\textsuperscript{137}

To illustrate, suppose firm X and university U are discussing the possibility of a research collaboration to develop applications of X’s new genetic engineering technology.\textsuperscript{138} Typically, such arrangements require that the firm contribute information, funding, and personnel in return for exclusive licenses to any new technology that results from the venture. Suppose X is competing with other firms for the opportunity to work with U’s top-notch research faculty. U believes that the success of any joint venture with X depends critically on the quality of X’s genetic engineering technology, and X understands that this is the main reason for U’s interest. Given that U has other options, U insists on studying X’s technology in detail so that it can value the contract before agreeing to any terms. But worried that U will just take the technology, X insists that U first give a waiver or contractual promise. U, however, refuses to agree out of concern that doing so will open it up to potential lawsuits if it does not conclude a deal with X and develops and uses the same technology independently.\textsuperscript{139}

Thus, the parties can end up in a stalemate because of the asymmetric information and resulting transaction costs associated with the transfer of intellectual property.\textsuperscript{140} U cannot value the benefits of the contract without inspecting the technology, but X fears that U will just take the technology without entering into the contract—or at least insist on a higher price. Patent and copyright solve this

\textsuperscript{137} See Kenneth J. Arrow, Economic Welfare and the Allocation of Resources for Invention, in The Rate and Direction of Inventive Activity: Economic and Social Factors 609, 614-16 (1962).

\textsuperscript{138} This example assumes that X has private information about its technology that U needs to know in order to value the contract accurately. Of course, it can also work the other way. U might have private information about its research capabilities or unpublished research results that X would like to know. However, U does not have to worry about immunity obstacles to protecting its intellectual property when it shares that property with X.

\textsuperscript{139} U may also be concerned about potential lawsuits if it ends up in some kind of collaboration with another firm that developed the same technology independently.

\textsuperscript{140} There is evidence that disputes about intellectual property rights already create significant obstacles to negotiating joint ventures successfully. See, e.g., Blumenthal et al., \textit{supra} note 22, at 370.
problem by preventing appropriation after inspection without the need for waiver or contractual promise. By undermining the effectiveness of the copyright and patent solution, broad state immunity can result in fewer mutually beneficial joint ventures or collaborations between private industry and state universities.

Secrecy also creates special problems unique to the university setting. The more secrecy is used as a strategy for protecting intellectual property, the more stringent the constraints are likely to be on faculty publication of research results. Many commentators are already concerned about the adverse impact of secrecy on traditional academic values of openness and publicity and on the university’s scholarly commitment to advancing public knowledge.141 Empirical studies indicate that firms involved in research collaborations with universities today frequently insist on disclosure restrictions that last much longer than the time necessary to file for a patent.142 Increased reliance on secrecy will only exacerbate these problems.

Immunity can also affect the kinds of relationships private firms enter into with state universities. Firms today are not always motivated to enter research collaborations by the prospect of acquiring specific intellectual property assets for later commercial exploitation. Frequently, they are more interested in getting access to cutting edge ideas and talented graduate students for future employment.143 Relationships of this kind should be easier to negotiate, at least insofar as Arrow’s Paradox is concerned, and could become more frequent with immunity obstacles to suit. For example, a joint venture that focuses on funding basic research rather than targeting specific applications can give firms access to new ideas and talented graduate students

141. See, e.g., Blumenthal et al., supra note 22, at 371-72 (noting that “secrecy is more common in industrially supported research [in the life sciences] than in research supported otherwise” and includes information of value to academic colleagues, “including those useful in repeating and confirming the work.”); see also Florida, supra note 1, ¶ 33 (expressing concerns about “disclosure restrictions” that serve the interests of private firms but withhold valuable information from the public domain).

142. The motivation is often to protect secret know-how or experimental methods from disclosure. See, e.g., Blumenthal et al., supra note 22, at 371-72 (presenting statistics).

143. See House Science Policy Hearings, supra note 22, ¶ 22; Blumenthal et al., supra note 22, at 370.
without the need to disclose specific firm technology and without the high transaction costs of negotiating intellectual property rights.

The social impact of a shift in industry-university cooperation away from applied research and toward basic research is difficult to determine. There are social benefits to enhanced private funding of basic research, but there are also social costs to creating disincentives for private industry-university cooperation in the development of useful applications.

State immunity can generate other costs as well. For example, since state law holds out the best hope for legal protection, firms dealing with state universities will have to become familiar with the substantive intellectual property, contract, and immunity law of all the different states in which they transact. This increases search and information costs, and it also increases litigation costs by inviting disputes over the choice of state law to apply.

Finally, state university immunity from declaratory judgment actions can create special costs for the patent system. If a state university does not have to worry about being sued for a declaration of patent invalidity, it might be more inclined to stretch the limits of patent by seeking excessively broad patents over basic research results, such as gene fragments and sequences. Any such application would have to survive a patent examiner’s scrutiny, of course, but there is reason to believe that the patent examination process is plagued by a substantial risk of error and that the error is skewed in the direction of patent grants. Without judicial error correction in later declaratory judgment suits, there could be a greater number of excessively broad or otherwise erroneously granted patents held by state universities. Excessively broad patent monopolies create

144. See generally Arti Kaur Rai, Regulating Scientific Research: Intellectual Property Rights and the Norms of Science, 94 NW. U. L. REV. 77 (1999) (noting the increased propensity of universities to patent results, such as gene fragments, that are very close to fundamental research).


146. State universities are not completely immune from judicial scrutiny of patent validity. If a state university sues for infringement in federal court, the defendant can raise the defense of patent invalidity in that suit. And a judicial
deadweight loss, impede diffusion and further innovation, and raise transaction costs by increasing reliance on licensing.

V. CONCLUDING THOUGHTS

This analysis of the effects of state immunity is only suggestive and admittedly quite speculative. Much more empirical evidence is needed before any predictions can be made with confidence. But the analysis suggests directions for empirical research and, if confirmed, has important implications for a proper understanding of the costs of immunity in the intellectual property field.

First, critics should not blithely assume that the Supreme Court's broad approach to the Eleventh Amendment risks widespread infringement by state universities. Reputation or informal sanctions can provide nonlegal inducements to compliance in many situations. In this regard, it would be helpful to have more empirical research into the reasons why universities honor intellectual property rights, when they do, and the presence of factors in the university setting that support the development of reputation markets, such as mechanisms for wide diffusion of reputational information.

Second, supporters of a broad approach to Eleventh Amendment immunity should not infer state compliance with intellectual property laws from a sparse record of state infringement. Even rare cases of actual infringement can support credible threats strong enough to induce firms to take strategic countermeasures, such as increased reliance on secrecy and contract, and to shift research agendas and goals for university joint ventures. These countermeasures, in turn, can be costly even if they keep the frequency of actual infringement quite low. These indirect costs are much more difficult to measure than direct infringements, but they are at least as important to an
determination of patent invalidity might bind the university in future infringement suits through the operation of nonmutual collateral estoppel—provided nonmutual collateral estoppel in this context is consistent with the Eleventh Amendment. See, e.g., Blonder-Tongue Lab., Inc. v. University of Ill. Found., 402 U.S. 313 (1971) (holding under the doctrine of collateral estoppel that a patentee whose patent is held invalid in his suit against one alleged infringer may be precluded from asserting the validity of the patent against another alleged infringer). Thus, the effect is a marginal one. The lack of a declaratory judgment action incrementally reduces firm incentives to use the patented invention but does not eliminate those incentives altogether.
understanding of the policy stakes. Again, this analysis has implications for empirical research insofar as it highlights the importance of knowing more about the effectiveness of firm strategies.

Even the existence of substantial strategic costs does not necessarily mean that broad interpretations of the Eleventh Amendment are bad as a policy matter. That conclusion depends on the benefits of state immunity, which supporters claim include respect for the dignity of states as quasi-independent sovereigns, preservation of state and federal political accountability, and safeguarding of state fiscal resources.147

But if broad Eleventh Amendment immunity is bad policy, an important lesson of this Article is that Congress’s options in dealing with it might be more limited than commonly supposed. If immunity’s costs are manifested not in actual infringement but in strategic maneuvering to minimize infringement risks, then there might never be the sort of evidence of widespread infringement that the Court requires as a condition for outright congressional abrogation of immunity.148 To be sure, this Article analyzes the effects of immunity only in the repeat play environment of university-industry interaction, leaving the possibility that states will infringe sufficiently often in nonuniversity settings to support congressional abrogation across the board. Yet states rely on repeat business with private intellectual property firms frequently enough in settings outside of the university that the predictions of this Article are likely to hold more generally.149

If the costs of immunity are felt in ways other than infringement, then Congress will have to respond in ways other than abrogation. In particular, Congress will have to proceed indirectly, perhaps by attaching waiver conditions to federal research grants, expanding the statutory liability of state employees for federal intellectual property infringement, or curtailing the qualified immunity defense. None of

148. See supra note 39 and accompanying text (noting that the Supreme Court requires a pervasive and widespread pattern of state infringement before Congress can exercise its power to abrogate under Section 5 of the Fourteenth Amendment).
149. In addition, Professor Peter Menell, in his contribution to this symposium, identifies a number of institutional constraints that could mitigate the risk of infringement in nonuniversity settings.
these options is as effective as outright abrogation. Thus, the most serious consequence of the Court’s Eleventh Amendment jurisprudence is that it might hinder the federal government’s efforts to deal with a nationally important segment of intellectual property policy.

Whatever the normative and legal implications, however, one thing is certain. Any serious analysis of the Eleventh Amendment’s impact on university-industry relations in the intellectual property field must begin with a rigorous understanding of the factual settings and strategic dynamics involved. This Article will have succeeded if it has helped to advance that understanding.