July 2016

Are Universities Special?

Shubha Ghosh

ARE UNIVERSITIES SPECIAL?

Shubha Ghosh *

I. INTRODUCTION

Universities play a special role in the innovation ecosystem defined by federal funding agencies, state and federal government research, private industrial research and development, and intellectual property laws. Two overlapping and complementary questions define policy and doctrinal debates over the relationship between universities and innovation. First, how do we define the boundaries and scope of the university's role in innovation? Second, once defined, will special rules for universities be required under intellectual property laws?

This Article focuses on patent and copyright laws as applied to universities. Within existing statutes and as part of reform proposals, universities are sometimes given special treatment with respect to various dimensions of intellectual property.[1] Ownership rules may be

* Crandall Melvin Professor of Law & Director, Technology Commercialization Law Program,

tailored to the unique organizational form of universities, specifically in the various types of employees and the unique status of students, faculty, and staff. In turn, defenses such as experimental use and fair use may have unique applications that take into account the university's status as a not-for-profit entity dedicated to education and research.[2] Recent patent reform notably enacted tailored defenses of prior user rights because universities do not actively engage in the direct manufacture of technologies.[3] Finally, in the ongoing debate over patent reform to address the problem of frivolous litigation by non-practicing entities ("NPE"), or trolls, there is a case for excluding universities from the NPE classification.[4] These examples are the basis for the analytical section of this Article, assessing whether universities should be granted special treatment under patent and copyright laws.

Past disputes can provide context for current debates. A search of intellectual property opinions involving universities uncovers the first published opinion regarding university intellectual property in 1930. Relevant cases from that year involved a trademark dispute over the term "University Clothes, Inc."[5] and a copyright dispute involving Yale University Press.[6] The search uncovered over 700 reported opinions since 1930 involving intellectual property and universities. This body of opinions shows the increasing importance of intellectual property for universities. It also shows that the number of intellectual property opinions involving universities is small compared to the larger body of intellectual property disputes.

Assessment of intellectual property rules for universities rests on understanding how they function as organizations. This inquiry is both positive and normative. For example, Peter Lee identifies two tendencies in the relationship between intellectual property and universities.[7] One is that of academic exceptionalism, which exempts universities from many of the protocols and policies of intellectual property law. The other

---

Syracuse University College of Law. BA, Amherst College; MA, PhD, University of Michigan Michigan; JD, Stanford Law School. This article was originally presented as a talk at the conference on universities held at the University of Akron School of Law, October, 2015. The author would like to thank Professors Jacqueline Lipton and Ryan Vacca for organizing the event.

1. *See, e.g.*, Peter Lee, *Patents and the University*, 63 DUKE L.J. 1, 64-75 (2013).
2. *See, e.g.*, *id.* at 25-26.
3. *See id.* at 71-73.
4. *See* Mark A. Lemley, *Are Universities Patent Trolls?*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611, 612-13 (2008) ("Universities are non-practicing entities. They share some characteristics with trolls . . . but they are not.")
5. Panitz v. University Clothes, 40 F.2d 811 (D.C. Cir. 1930).
6. Yale University Press v. Row, Peterson & Co., 40 F.2d 290 (S.D.N.Y 1930).
7. Lee, *supra* note 1.

tendency is one of internalization, as university culture becomes integrated into the commercial assumptions underlying intellectual property laws. Professor Lee reconciles these two tendencies by describing universities as entities imbued with a public purpose.[8] This public purpose allows the universities to act within the world of intellectual property law with limits to include the public-minded ends of university management.

The American university, however, has undergone many challenges as the organization navigates the pulls of commercialization and the demands of the many constituencies it serves.[9] At any point in time, a university may be serving many goals, some purely private and some purely public.[10] As universities seek revenue sources from athletics, teaching, and research, they act not all that differently from for-profit corporations. At the same time, as universities seek to diversify faculty and the student body and serve the needs of local communities, they act like charitable organizations. Aggregating the various pulls on universities into one criterion such as public purpose is difficult, if not impossible. Instead universities are multivalent, and managed along multiple criteria. This is the principal theme of this Article.

Interactions between private interests and public rights within universities dictate how researchers and scientists negotiate the need for practical, industrial application and pure, scientific knowledge.[11] Intellectual property law and policy creates special rules based on the complex dynamic between universities and innovation, and it should continue to do so as universities shift between models of pure research and pure commercialization. The special rules for universities represent legislative compromises that rest in part on an idealized view of universities and on the real politics of law-making in a world of university-industry collaboration.[12] This Article presents a multivalent model that offers a positive account of university governance, which can guide intellectual property policy as set forth in both legislation and in

8. *Id*. at 75-76.

9. *See* LAURENCE R. VEYSEY, THE EMERGENCE OF THE AMERICAN UNIVERSITY 252 (1965) (tracking the development of the university's role from that of providing religious education to that of pure research within a liberal culture).

10. *Id*. at 346-48 (setting forth various business models for universities).

11. *See* STEVEN SHAPIN, NEVER PURE: HISTORICAL STUDIES OF SCIENCE AS IF IT WAS PRODUCED BY PEOPLE WITH BODIES, SITUATED IN TIME, SPACE, CULTURE, AND SOCIETY, AND STRUGGLING FOR CREDIBILITY AND AUTHORITY 213-14 (2010) (analyzing the dilemma facing the industrial scientist navigating the tensions between the culture of universities and that of industry).

12. *See, e.g.*, WENDY SCHACHT, CONGRESSIONAL RESEARCH SERVICE OF THE UNITED STATES, RL32076, THE BAYH-DOLE ACT: SELECTED ISSUES IN PATENT POLICY AND THE COMMERCIALIZATION OF TECHNOLOGY 4 (2006).

university administration.

What distinguishes this Article is its focus on the university as an organization. While a university is an institution embodying specific values of a community (whether local, national, or global), a university is a collection of individuals coming together to interact in a community. As an organization, a university has to choose its governance structure, including its management of intellectual property rights and the attendant relationships among researchers, teachers, students, and administrators.[13] When I ask whether a university pursues pure research, pure commercialization, or a mix, I am asking a question about how a university is organized. It is the focus on the university's organization that distinguishes the approach of this Article from other scholarly work.

Answering the question of whether universities are special requires delving into the purpose of universities, particularly in the broader innovation ecosystem. Part II of this Article presents three specific models of the university, which address these bigger questions stated above. These specific models are meant to be both descriptive and normative and serve as a benchmark for assessing the contributions of universities to innovation. As one application of these three models, I look at the specific case of university athletics. This example introduces many of the analytic issues pertinent to understanding the role of the university in innovation. Part III presents the special rules arising in intellectual property laws for the treatment of universities. The models presented in Part II provide a foundation for assessing these special rules normatively for intellectual property policy. Part IV concludes by stating that universities are special and recognizes that organizational choice plays a critical role in federal and state policies for invention, innovation, and development of intellectual property. My bottom line is that the special rules represent legislative compromises that rest in part on an idealized view of universities and on the real politics of law making in a world of university-industry collaboration.

II. ROLES OF THE UNIVERSITY

Universities are seemingly timeless institutions, serving as sanctuaries for those who want to engage in ideas, learning, and cultural milestones for personal development. Perhaps Plato's Academy is the

13. *See, e.g.*, MAKERERE UNIVERSITY, INTELLECTUAL PROPERTY MANAGEMENT POLICY (March 13, 2008) (on file with author) (setting forth intellectual property and governance rules in a university in Uganda and illustrating the importance of organization rules for universities in developing countries).

earliest example of a university offering an informal venue for dialogue, unfettered by curricula and driven solely by wide ranging inquiry.[14] Nalanda University in Bihar, India, University of Bologna, Oxford, and Cambridge are the old-world models, offering more structure than the Academy but serving a similar role as haven for the inquisitive and contemplative.[15]

The modern university is associated with the United States, but U.S. universities take many forms. Established and elite universities like Harvard and Yale were founded for the moral education of men and to instill spiritual values associated with good citizenship and participation.[16] This model was transmitted throughout the Colonies, and the tradition continues through today, even if the spiritual virtues have taken on a more professional dimension targeted towards the development of a managerial class. Land grant universities were a government venture aimed at turning newly acquired territories into institutions providing practical training for citizens of the newly recognized states.[17] Practical, at the time, had a broad meaning going beyond narrow job training to include problem solving and engagement with the broader population. For land grants, the sanctuary of the university served a public purpose. Add to these two models the technical colleges, the technical institutes, community colleges, and city universities, and we obtain a rich picture of universities as institutions: establishments that were vital and critical for the functioning of the country with a range of options for those who sought civic engagement or introspection.

German universities enter into our understanding of university models in part through their influence on the organization of university administration.[18] Bureaucratization and the development of departments opened the way for governance within the university, permitting the offering of greater services and options for its constituencies, primarily students. German universities were the models for elite U.S. universities in the late nineteenth century, providing a rigorous theoretical training

14. *See* Thomas J. Siepmann, *The Global Exportation of the U.S. Bayh-Dole Act*, 30 U. DAYTON L. REV. 209, 213 n. 15 (2004); Edward J. Conry & Caryn L. Beck-Dudley, *Meta-Jurisprudence: A Paradigm for Legal Studies*, 33 AM. BUS. L.J. 691, 735 (1996).

15. *See, e.g.*, Jeffrey E. Garten, *Really Old School Higher Education in Asia*, INT'L HERALD TRIB. (Dec. 11, 2006), 2006 WLNR 21360007 (describing Nalanda University as one of the first great universities that died a slow death around the time the great European universities, including Oxford and University of Bologna, were getting started).

16. *See* VEYSEY, *supra* note 9, at 32-33.

17. *Id*. at 70-71.

18. *Id*. at 128-29.

that rose above technical schools.[19] Particularly, elite law schools were fashioned in the manner of German universities providing doctrinal training within scientific traditions.[20]

After World War II, as the centers for university excellence shifted to England and the United States and away from devastated Germany, new visions of the university came to the fore in the United States.[21] The mega-university took the bureaucratized university to new heights, serving large populations of students and providing secure positions for academics and staff. Scientific research and development became the foundation for innovation policy as federal policymakers focused on ways to avoid the catastrophic downturn of the Great Depression. Federal agencies would provide funding for university researchers who would in turn generate new ideas, new products, and new inventions to feed industry.[22] Even if universities would not commercialize products, they would provide the resources, the seed capital from the intellect, for commercialization that would invariably feed the American consumer. But this scheme did not rule out the possibility of new companies and industries springing forth from within the university. However, there was a sense that the business of universities was not business, even if universities would sometimes be in close partnership with entrepreneurs.[23]

Against this historical background, we can identify three models for the contemporary university, particularly as we understand its relationship to intellectual property. The first is the model of the university as the producer of pure research, which is discussed in Part II.A. The second is the model of the university as a commercial entity with a public purpose, which is discussed in Part II.B. The third and final model, discussed in Part II.C, is the model of the university as a pure commercial entity, no different from a for-profit corporation. Let us examine each model in turn and assess its implications. The analysis will set the foundation for our understanding of specific patent and copyright doctrines as applied to universities.

A. Universities as Pure Research Entities

One idealized view of the university is as a producer of pure

19. *See* Mark Bartholomew, *Legal Separation: The Relationship Between the Law School and the Central University in the Late Nineteenth Century*, 53 J. LEGAL EDUC. 368, 377-78 (2003).

20. *See id.* at 378-79.

21. *See* VEYSEY, *supra* note 9, at 312-13.

22. *See, e.g.*, SCHACHT, *supra* note 12, at 5.

23. *See, e.g.*, *id*.

research[24] with its core constituencies, faculty, and students pursuing questions independent of commercial or financial concerns. It would be hard to deny the inherent value of free and open inquiry, untethered from concerns of profit and internal rates of return. The interesting question is to what extent can universities match this ideal in practice? Resource constraints and scarcity of time and money may limit how far faculty and students can thrive in a rarified environment of free wielding inquiry, guided solely by the rigors of particular disciplines. Santiniketan, the lovely rural university created by Bengali poet and novelist Rabindranath Tagore, is the closest I have seen to such a utopia. Liberal arts colleges, tucked away in United States hinterlands, sometimes emanate pure intellectual pleasure and engagement even if marred by pressures of upward mobility and maintenance of social standing. St. John's University, with its Santa Fe and Annapolis campuses, requires commitment to a four-year, great-books program that immerses students in the development of Western Civilization.[25] If one were to construct a world from nothing, the need for some institution that allows for unadulterated thinking would be readily apparent; that institution would have many of the characteristics of actual universities.

While the temptation to exult pure research may stem from the desire to seek knowledge for knowledge's sake, there is a practical reason to focus on pure research. Concentration on fundamental questions allows disciplines to flourish and evolve. This is true whether that discipline is in the natural sciences, the search for understanding the work in which we live; in the humanities, the search for how thinking and emotions evolve in the individual personality; or in social cultures, with its dimensions of language, history, arts, and religion. This practical turn does not tarnish the purist model of the university. Human inquiry is not solely about having one's heads in the clouds, but also about being aware of the ground one walks upon. Pure research, to put it bluntly, can be both theoretical and applied.

Where the purist model starts to tarnish is through considerations of finance. To live the life of pure research requires resources. Some institutions, like Santiniketan, may have the benefit of healthy endowments, but such endowments have to be maintained, leading to dull, practical questions of where to invest, how much to invest, and

24. I do not mean to exclude teaching from the mission of the university by using the word "research." I am using that word expansively to include inquiry, and teaching would be part of the broader meaning.

25. *Academic Programs*, ST. JOHN'S COLLEGE, http://www.sjc.edu/academic-programs/undergraduate/liberal-arts/ (last visited Mar. 6, 2016).

where to place the returns. Institutions without endowments have more basic questions to ask about sources of money to run a going concern.[26] Practical research may readily become one revenue stream, requiring engagement with the world of commerce. Once that happens, the luster of the pure research model fades, and the choice has to be made whether the university becomes a profit center or continues with its idealized mission. The second model suggests a way that the institution can accomplish both.

B. Universities as Commercial Entities with Public Purpose

A second idealized view permits universities pursuing commercial ends but for a public purpose, which can be construed in many ways. As mentioned at the end of the previous section, the dual-purpose university satisfies both the need for profit and the pursuit of pure ideas. A university can be run as a business through the identification of revenue streams. These streams can include the commercialization of products and services developed within the university such as courses, patentable inventions, copyrightable content, and branded merchandise.[27] But what keeps the university from turning into an amusement park or a cruise ship on land is the demand of channeling profits towards public goals. The most likely candidate for these public goals would be the pursuit of pure research. However, like running water, currency can move towards many destinations, and the ocean of pure knowledge may be only one. As nonprofit organizations, universities need to put their profits back into the organization rather than making a payout to residual claimants, whether shareholders, partners, or members. By putting profits back into the organization, a university uses commercialization presumably to finance its public purposes.

The challenge for this model is the implication for the organization of for-profit universities. There is nothing within the model that rules out the possibility of for-profit universities so long as the entity uses its profits for public purposes. Defining these public purposes for a for-profit university is the difficult issue. Public purposes might include scholarships for students, research support for faculty, or funding for local community projects. But public purpose might also include

26. *See, e.g.*, Sarah E. Waldeck, *The Coming Showdown Over University Endowments: Enlisting the Donors*, 77 FORDHAM L. REV. 1795, 1800 (2009) ("Because the magnitude of activity is smaller at a liberal arts college, it needs fewer resources than a large research university.").

27. *See, e.g.*, Elizabeth Townsend, *Legal and Policy Responses to the Disappearing "Teacher Exception" or Copyright Ownership in the 21st Century*, 4 MINN. INTELL. PROP. REV. 209, 220 (2003).

international programs and other initiatives that extend beyond the traditional domain of the university. Conceptually, public purpose entails redefining the residual claimants of the surplus from a for-profit university to include a broader class of beneficiaries in the community. Doctrinally, the for-profit university could best be understood as a type of benefit corporation with the beneficiaries being defined by the founders and set forth in the corporate documents.

One concern with the public purpose model is that the definition of public purpose can expand to include interests that might seem more akin to private ones. For example, public benefits may align with private interests of founders or professors, such as the local symphony or regional art museum or with political causes and campaigns. Furthermore, the commercial goals of universities to accumulate financial surpluses might lead the university to focus solely on commercialization efforts, losing sight of any broader public benefit, however altruistically set forth in the founding documents. A cynic might say that universities inevitably collapse into the model of pure commercial activity, no different from other for-profit business organizations. But even without accepting that cynical position, a realist might still predict the inevitable collapse of the pure or modified models into the third model described in the next section.

C. Universities as Pure Commercial Entities

The third idealized view of the university is as a pure commercial entity no different from a for-profit corporation. To call this model idealized may seem misguided as reducing a university to the status of any other business entity eviscerates the institution of any noble ideals of learning and research. But the university as a locus of pure self-interest is idealized in the sense of serving as a rarified model for the purposes of analysis, a benchmark against which to gauge policy choices. This model is also idealized in the sense that it is wholly unrealistic, ignoring not only important virtues but also practical details of the university mission.

Among some, there may be superficial appeal in treating universities like any other business entity, driven by the profit motive and the necessity of meeting payroll. An implication of this conception of the universities is that they should be left to fail, no matter how big they are, if they cannot produce certain measures of success, whether they be profits, graduates, or research. For those familiar with post-Thatcher academia, this picture should be familiar as British universities

and academies are subject to unavoidable scrutiny of university outputs. With the example of contemporary British universities, it seems that this model is not pure fantasy and is one that seems to have been adopted.

Should this model be ruled out on its face? Faithful adherents to the pure research model might say yes. I may be one of these adherents, but am also willing to play the advocate here of the pure commercialization model. The defense would work as follows. Organizational success is important for society. One measure of success is survival in a competitive environment. Organizations that survive a competitive environment have characteristics of efficiency in delivering outputs that society finds desirable. Therefore, universities need to demonstrate their success by thriving in a competitive environment just like any other entity in order to benefit society.

The healthy competition argument ignores the many ways in which competition might be destructive. First, education and research generate positive externalities or benefits that cannot be fully captured through market competition. As a result, too little education will be provided and too little research will result if solely competitive forces determined outcomes. Second, the creation of universities requires large initial, or fixed, costs. These large fixed costs require some degree of scale of production in the marketplace for entities to be profitable. Competitive forces acting alone can make it difficult, if not impossible, for entities to generate scale in production. As a result, competitive forces may tend to drive out most universities that fail to reach a size that would be more conducive to success. While scale effects and externalities may arise in many industries, the two together make competitive forces unhealthy and even unworkable in producing viable, socially desirable universities.

In addition, there are potential problems of moral hazard and adverse selection in university markets. For example, education requires initial investments by students who defer present compensation for future earnings. Universities capitalize on these investments by accepting tuition payments currently with the expectation of returns to the training and education presented in the classroom. But once universities receive these tuition payments, there is an incentive not to fulfill the promise of training, especially if the educational inputs are uncertain or hard to completely measure. Therefore, universities might shirk in providing training (moral hazard), and bad universities might drive out good ones (adverse selection).

These limitations show that universities may be subject to regulation in order to deal with the infirmities of market transactions. This conclusion does not deny the validity of the pure commercialization

model. It simply states that universities would need to be regulated in similar ways as other entities that produce positive externalities, incur high fixed costs, and are subject to moral hazard and adverse selection. The form of those regulations would depend upon characteristics of the industry, paying particular attention to the geographic scope of the market (regional versus national), the distribution channels in the marketplace, allocation of information among buyers and sellers, organizational forms, and other factors.

D. No One Stable Model: How the Three Models Interact

In constructing the governance and regulation of universities, the specific details of social interactions among faculty, students, staff, and administrators would guide how regulation is designed and what transactions are the target of oversight. But in the course of assessing these social interactions, a regulator would come across the practical details of university life. Students need housing, access to books, and support in the education process. Faculty need resources to pursue teaching and research and tools for governance in interactions with students and with each other. Regulation comes up against these social interactions and the cultural values of education and scholarship. Universities, no matter the depth of commitment to commercialization, are political and social institutions, little communities, and sometimes little cities. Therefore, public mindedness and civic virtue must come into play for university governance. In this way, our three models may converge, or at least blur. Just as material necessity leads the pure research model towards the forces of commercialization, the attention to markets and competition leads to the need for social and cultural norms that allow universities to cohere into the locus of governance and regulation.

University athletics provides one example of how these three models apply to ongoing and compelling policy debates. How should athletics be regulated? Should athletics serve as a basis for commercialization or should they be seen as purely intramural? Answers will rest on how one conceives of the university.

The pure research model, in its extreme form, may support skepticism of athletics, especially in the all-consuming form. But those who favor the pure research model because of its appeal to the human mind would recognize the need for a healthy body to nourish mental activities. Therefore, college athletics can serve to support pure research through distraction, entertainment, and exercise. Furthermore, there

might be a limited practical and commercial benefit from investment in athletics. So athletics can flourish even within the pure research university but as a secondary venture that must yield when research is threatened.

For the university engaging in public minded commercialization, athletics has a role not only as a source of revenue but also as a basis for public engagement in competition and team spiritedness.[28] However, university commitment to athletics may come at the expense of the public interest. Town-gown relations may lead to tensions between privileged athletes and targets of abuse in the local community. Within the university campus, the special status of the college athlete may create divisions among students, and cause rifts between students and faculty who face pressures from athletic departments. Furthermore, an overemphasis on athletics may undermine public values of education and research as attention is distracted from the classroom to the gridiron.[29]

Athletics may be the lodestone for the purely commercially-minded university. Merchandising, television rights, ticket sales—each serve as just one source of many for the generation of revenue. The returns for investing in athletics can, in turn, finance research and educational efforts, at least for the successful, large-scale universities. But the market for college athletics will undoubtedly need regulation as students can be the victims of exploitation, and competition over intangible reputation and prizes can distort incentives in a winner take all market.[30] Some of these regulations will overlap with the concerns raised in the pure research model and in the commercialization with public purpose model. Nevertheless, if we allow universities to wholly focus on commercialization, to operate like any other firm, a heavy focus on athletics may require more regulation to address university battles over revenue streams and intellectual property rights within and across the university.

The example of athletics demonstrates how the three models would apply to the issue of intellectual property doctrine and the question posed in the title of this Article. The pure research and commercialization with public purpose models would support special rules for universities to potentially limit the adverse roles of patent and

28. *See, e.g.*, CHARLES T. CLOTFELTER, BIG-TIME SPORTS IN AMERICAN UNIVERSITIES 95-96 (2011).

29. *See* Matthew J. Mitten, James L. Musselman, & Bruce W. Burton, *Targeted Reform of Commercialized Intercollegiate Athletics*, 47 SAN DIEGO L. REV. 779, 818, 837 (2010).

30. *See id.* at 781.

copyright for the goals of universities. A pure commercialization model might support a more expansive role for copyright and patent. But, as the discussion in this section also shows, these models may have overlapping application. Consequently, actual rules for universities within copyright and patent illustrate different applications of these models, emphasizing some goals and downplaying others, depending upon the context. To discern these conflicting visions of the university in patent and copyright, we turn in the next section to specific doctrinal applications.

III. UNIVERSITIES AS OWNERS, USERS, AND ENFORCERS

How does the dynamic of the three models of the university inform intellectual property policy towards universities? This section examines that question with particular attention to the issues of ownership in Part III.A, infringement in Part III.B, and enforcement in Part III.C.

A. Universities as Owners of Patents and Copyrights

Ownership rules for intellectual property would seemingly be neutral between universities and other entities. Patent rights are initially allocated to the natural person who invents the patented subject matter. Whether that natural person invents within a university or a for-profit context is irrelevant for the basic rule of patent ownership.[31] Similarly, trademarks are owned by the user of the trademark to brand an association in consumers' minds between a product or service and the mark serving as an indicator of source. If a university creates and uses a trademark to brand its services and products, the university owns the trademark. Finally, work made for hire under copyright law applies equally to employees and contractors within universities and those within for-profit entities.[32] Therefore, the university can be deemed the author and copyright owner of works created by their employees, whether faculty, staff, or students.[33] In this section, the focus will be on patent and copyright ownership rules for universities.

Before the passage of the Bayh-Dole Act, recipients of federal research funding and sponsored research grants could not have an

31. *See* Lee, *supra* note 1, at 60.

32. *See* Michele J. Le Moal-Gray, *Distance Education and Intellectual Property: The Realties of Copyright Law and the Culture of Higher Education*, 16 TOURO L. REV. 981, 991-92 (2000).

33. *See id.* at 993.

ownership interest in patents.[34] This restriction applied to researchers who received the funding, as well as their employers.[35] The limitation on patent ownership applied to all entities, including universities, for-profit corporations, and non-profit stand-alone research institutes.[36] In practice, however, universities and research institutes were the principal recipients of research grants. Effectively, at one point in time in the history of U.S. patent law, there were separate rules of patent ownership for universities. The rationale for not allowing recipients of federal funding to own patents was one of avoiding double taxation of the public, who would pay once for the federal funding and would pay again in purchasing potentially higher priced patented products that resulted from the funding.

The Bayh-Dole Act removed this prohibition against patent ownership by allowing recipients of federal funds and sponsored grants to patent inventions that were the result of the funded research and development.[37] Double taxation was not seen as a bar because, absent the patent, an innovative product might not even make it to market. Therefore, the taxpayer would be paying first for the invention of the new technology and second for its commercialization. Patents were seen as underwriting the innovation process while the research funding stimulated invention and discovery. An open question under the Bayh-Dole Act, however, is who owned the invention that was the fruit of university research. Commentators, as well as representatives of universities, read the Bayh-Dole Act as giving the contractor an ownership interest in the patent as the recipient of the funds.[38] Under this interpretation, the university would automatically own patented inventions created by an employee. On the other hand, advocates for inventors argue that the Bayh-Dole Act did not alter the basic patent rule that inventors owned their inventions and were initially allocated patent rights.[39] The United States Supreme Court resolved this issue in its 2011 *Stanford v. Roche* decision.[40]

34. *See generally* Rebecca S. Eisenberg, *Public Research and Private Development: Patents and Technology Transfer in Government-Sponsored Research*, 82 VA. L. REV. 1663 (1996).

35. *See* SCHACHT, *supra* note 12, at 2.

36. *See id.*

37. *See id*. at 1.

38. *See, e.g.*, Lee, *supra* note 1, at 31.

39. *See* Maddy F. Baer, Stephanie Lollo Donahue, & Rebecca J. Cantor, Stanford v. Roche*: Confirming the Basic Patent Law Principle that Inventors Ultimately Have Rights in Their Inventions*, 47 LES NOUVELLES 19, 23 (2012).

40. Bd. of Trs. of the Leeland Stanford Junior Univ. v. Roche Molecular Sys., Inc., 131 S.Ct. 2188 (2011).

The facts of the *Stanford* case are as follows. As part of a federal grant obtained from the National Institute of Health, Stanford University hired a research scientist, Dr. Mark Holodniy, to investigate the diagnosis and treatment of HIV.[41] Dr. Holodniy signed a promise to assign future patent rights to Stanford.[42] On a research leave from Stanford, the scientist visited Cetus where he learned PCR techniques to sequence genes.[43] As a visitor, he signed an assignment agreeing to assign future patent rights to Cetus.[44] Holodniy obtained a patent, which was assigned to Stanford.[45] In the meantime, Roche acquired Cetus who, under the terms of the assignment agreement from Holodniy, began to use the technology notwithstanding the fact that the patents were assigned to Stanford.[46] Stanford sued for patent infringement, and Roche raised the defense that Stanford had no patent rights.[47] The district court found for Stanford, basing its decision on the Bayh-Dole Act, which allegedly assigned priority of rights to Stanford, the recipient of the federal funds.[48] The Federal Circuit reversed, reasoning that Stanford did not have rights under the Bayh-Dole Act and, in fact, had rights subordinate to those of Roche.[49] The conclusion rested on the wording of the assignments. Cetus's assignment agreement stated that Holodniy "hereby" assigned its future patent rights to Cetus.[50] This language was construed as a present assignment to the company. On the other hand, the assignment to Stanford did not contain this language.[51] Therefore, even though Stanford's assignment was first in time to be entered into, the rights conferred onto the university were a future promise to assign future rights. Consequently, Roche obtained the future patent rights at the time the assignment was executed, and therefore acquired the patent rights before Stanford. The university appealed to the Supreme Court on the question of rights under the Bayh-Dole Act.[52] Whether the Federal Circuit correctly interpreted the assignments was not raised in the

41. *Id.* at 2192.
42. *Id.*
43. *Id.*
44. *Id.*
45. *Id.*
46. *Id.*
47. *Id.* at 2193.
48. *Id.* at 2194.
49. Bd. of Trs. of the Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc., 583 F.3d 832, 836-37, (Fed. Cir. 2009).
50. *Id.* at 842.
51. *See id.* at 841-42.
52. *Stanford*, 131 S. Ct. at 2195.

petition for certiorari.[53]

The Supreme Court affirmed the Federal Circuit on the Bayh-Dole issue.[54] Justice Roberts' majority opinion starts from the fundamental principle that the inventor is the initial owner of patent rights.[55] Nothing in the language of the Bayh-Dole Act, he wrote, changed that basic rule.[56] The Act was permissive, altering the previous rule against patent ownership by recipients of federal funding. Under the Act's terms, the recipient is allowed to own a patent. However, the Act does not grant the recipient rights in the patent automatically. Instead, patent rights have to be transferred through an assignment or a license, as with any other entity. Justice Breyer, in his dissent joined by Justice Ginsburg, would read the Bayh-Dole Act as giving the contractor with the funding agency, namely the university, outright ownership in any patents that stem from the funded research.[57] According to the dissent, the Bayh-Dole Act creates a three-tiered system of ownership with patent rights first going to the university, then to the government, and finally to the inventor, absent agreements to the contrary.[58] By contrast, Justice Roberts emphasized common law rules of ownership, which he reasoned were not modified or abrogated by the Act.[59]

University ownership of patents provides an insightful example for assessing the special treatment of universities. Under the ruling in *Stanford v. Roche*, universities do not get special treatment for patent ownership because they are the recipients of federal research funds.[60] Justice Roberts' reasoning supports the conclusion that universities are just like any other entity and therefore subject to the same common law rules of ownership. This conclusion may be based on an implicit adoption of the third model, described in the previous section, of treating universities just like any other commercial entity. While that may be the effect of the ownership rules, the Court's rationale may have more to do with the recognition of inventors' rights and the importance of clear abrogation of common law rules by the legislature. The rationale seems to be one of correct incentives for invention rather than the proper role of the university, even if the effect is to put universities on the same level as commercial entities.

53. *Id.* at 2194 n. 2.
54. *Id.* at 2199.
55. *See* SCHACHT, *supra* note 12, at 3.
56. *Stanford*, 131 S. Ct. at 2199.
57. *See id.* at 2203-04 (Breyer, J., dissenting).
58. *Id.* at 2200.
59. *Id.* at 2194-95 (majority opinion).
60. *Id.* at 2197.

As a final note, it is useful to compare the treatment of ownership under the Bayh-Dole Act with work made for hire. Under the latter doctrine, the university would hold the initial entitlement in copyright for works created by its employees.[61] Ostensibly, universities are treated like other commercial entities for the purposes of copyright ownership.[62] But the rule itself may incorporate differing employment relationships across differing entities. Within universities, university ownership may depend on internal rules defining how various constituents, students, and faculty and staff, are treated for employment purposes. Furthermore, the teacher exception, recognized in several states, excludes copyrighted teaching materials from the work made for hire rules.[63] This exception allows teachers to retain copyright ownership in their teaching materials even if they are deemed to be employees of the university.

On the surface, ownership rules for patent and copyright suggest a coequal treatment of universities and commercial entities. But because of the special circumstances and rules surrounding universities, the equal application of ownership rules allows for university ownership to serve a public interest consistent with the second model describing the status of universities. This public interest can be pursued by specific rules for defining employee status and through exceptions such as that for teaching materials.

B. Universities as Infringers and the Experimental Use Defense

Experimental use is a defense to patent infringement, which was narrowed by the Federal Circuit in its *Madey v. Duke University* decision.[64] This defense is analogous to the reverse engineering defense under trade secret law and the narrow protection for reverse engineering under copyright fair use. All three doctrines recognize to various degrees the value of experimentation, research, and study in the creative process. In the case of copyright, fair use protects from claims of infringement follow-on creation that facilitates compatibility and interoperability of conflicting software based systems, such as with videogames.[65] In the

61. *See* Michele J. Le Moal-Gray, *supra* note 32, at 991-93.

62. *See, e.g.*, JACOB H. ROOKSBY, THE BRANDING OF THE AMERICAN MIND: HOW UNIVERSITIES CAPTURE, MANAGE, AND MONETIZE INTELLECTUAL PROPERTY AND WHY IT MATTERS (forthcoming 2016).

63. *See* Eric Priest, *Copyright and the Harvard Open Access Mandate*, 10 NW. J. TECH. & INTELL. PROP. 377, 403-06 (2012).

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

65. *See e.g.*, Karen E. Georgenson, Comment, *Reverse Engineering of Copyrighted Software: Fair Use or Misuse?*, 5 ALB. L.J. SCI. & TECH. 291, 294-308 (1996).

case of trade secrets, reverse engineering permits experimentation to uncover knowledge that is secreted away by a company.[66] Experimental use, in contrast, is narrower in permitting through its common law form philosophical inquiry and speculation, but not uses that are motivated by commercialization.[67]

The different treatments of experimentation reflect the different balances of ownership and use under each area of the law. For copyright, reverse engineering as fair use reflects the intermingling of uncopyrightable processes and copyrightable software in videogames. For trade secrets, reverse engineering sheds sunlight on the opaqueness of trade secret law. Experimental use under patent law is narrow because the patent document discloses the invention that anyone can read even if use of the invention is prohibited. In order to discover the trade secret, one is allowed to study and take apart the product or process protected by secrecy.[68] Patent law does not permit experimentation more broadly because the document reveals the invention.

This narrow conception of experimental use under patent law follows from the Federal Circuit's decision in *Madey*, an opinion based on a provocative view of the university. Madey, an acclaimed scientist in the field of lasers, left Stanford University to join the faculty of Duke University.[69] One of the attractions in joining Duke was the promise of new lab facilities to house Madey's patented laser gun.[70] When Madey left Duke, he left for a time his patented laser in his former lab.[71] Researchers at Duke used the laser without his permission, and Madey sued for patent infringement.[72] Duke University unsuccessfully raised the experimental defense, pointing to its pure academic purposes in using the patented tool.[73] The Federal Circuit rejected the defense because Duke had a commercial interest in its experiments, even if only indirect.[74] Experiments could lead to research funding, which could lead to greater research and development that would be the basis for further patents and commercial ventures. The court's reasoning reduces most, if

66. *See generally* Daniel Laster, *The Secret is Out: Patent Law Preempts Mass Market License Terms Barring Reverse Engineering for Interoperability Purposes*, 58 BAYLOR L. REV. 621, 639-40 (2006).

67. *See* Lee, *supra* note 1, at 25.

68. Laster, *supra* note 66, at 640.

69. *Madey*, 307 F.3d at 1352.

70. *See id.*

71. *See id.* at 1353.

72. *Id.*

73. *See id*. at 1356, 1360.

74. *Id.* at 1361-63.

not all, university activity to being commercial in nature. As a result, the experimental use was found not to apply.[75]

Arguably, Duke tried to expand the experimental use defense to cover all activities by researchers in universities. The University in effect was asserting a special rule excepting universities from patent infringement under the experiment use defense. The Federal Circuit rejected this expansionist view by offering a contrary expansionist position.[76] The court's opinion is a broad one, strongly implying that universities are no different from other commercial entities. The *Madey* opinion represents the third model of universities, described above. Pure research, under the court's reasoning, would not be possible in a university; all paths lead to commercialization.[77] Public purpose also seems elusive for a university if one accepts the Federal Circuit's views. It is very difficult to distinguish between a university and a commercial, for-profit entity. Although this equation may apply only to the experimental use defense, the Federal Circuit's view of the research university would imply that there are no special rules for universities under intellectual property law.

Prior user rights were expanded under the America Invents Act beyond the narrow confines of business method patents introduced in 1999 amendments to the Patent Act of 1952.[78] If the Federal Circuit's *Madey* opinion would suggest no special rules for universities, Congress' treatment of prior user rights demonstrates the need for special rules in certain circumstances. Comparing the different approaches of the Federal Circuit and Congress to universities shows contrasting institutional perspectives as well as the role of university-based interest group politics in the passage of patent legislation.

Under the America Invents Act (AIA), which added § 273 of the Patent Act, prior user rights apply to a person who "acting in good faith, commercially used the subject matter in the United States, either in connection with an internal commercial use or an actual arm's length sale or other arm's length commercial transfer of a useful end result of such commercial use."[79] This commercial use must occur within one year of either one of two effective dates set forth in the statute.[80]

---

75. *Id.* at 1364.

76. *See id.* at 1360-63.

77. *See id.* at 1362-63.

78. 35 U.S.C § 273 (West, Westlaw through P.L. 114-115 (excluding 114-94 and 114-95) 2015).

79. § 273(a)(1).

80. § 273(a)(2).

The provision expands the definition of commercial use and the applicability of the defense to include universities. Specifically, the section provides: "A use of subject matter by a nonprofit research laboratory or other nonprofit entity, such as a university or hospital, for which the public is the intended beneficiary, shall be deemed to be a commercial use . . . except that a defense under this section may be asserted pursuant to this paragraph only for continued and noncommercial use by and in the laboratory or other nonprofit entity."[81]

The expansive definition of "*commercial* use" might suggest that the philosophy underlying the AIA is one that places universities as equivalent to other commercial entities. But that conclusion would ignore the linguistic trick that is at the heart of the prior use defense. By limiting the scope of patent infringement, the prior use defense protects consumers and marketplace competition by exempting an entity that has made prior commercial use of a patented invention before certain critical dates relevant to the patenting process. Effectively, these prior commercial uses are placed in the prior art not to invalidate the patent in question, but to narrow its reach. However, by extending the protection only to prior commercial users, the AIA offers no protection to prior users who are non-commercial.[82] One could argue that patent owners would have less incentive to pursue non-commercial prior users because there would be limited damages to recover, notwithstanding the possibility of an injunction against these prior users. If universities are left exposed to patent liability when they would otherwise qualify as prior users, the expansive definition equalizes the treatment of universities and commercial prior users. Therefore, the definition of commercial use implicitly recognizes the difference between universities and commercial entities.

What is the difference? Does the recognized difference support either of the alternative models for treatment of universities? Arguably either model one or model two can explain the difference implicit in the text of the prior use defense. Folding university research use into commercial use would suggest the university as a locus of pure research, where even activities that could lead to patenting are pursued for the goals of pure research. Furthermore, the need to include university research within commercial use could reflect a broader public purpose for university activity that requires shelter from the specter of patent infringement. While that purpose may go undefined, the drafters of the

81. § 273(c)(2).
82. *See* § 273(a).

AIA seem to recognize a public purpose for universities. Interestingly, such public purpose or commitment to pure research may also explain the carve-out for commercial use. It will be interesting to see how prior use is applied. Although, based on past experience in the United States and in Germany, the defense may never be actually raised.

As a comparison, it is useful to consider the defense of state immunity under the Eleventh Amendment for copyright and patent infringement. Immunity for patent was the subject of a 1999 Supreme Court decision, which was applied to copyright infringement by lower courts.[83] The rationale for immunity is based on the immunity of states for suits for damages in federal court under the Eleventh Amendment. While the constitutional basis for state immunity rests in a questionable reading of the constitutional text, the Supreme Court has found state immunity in federal court to be broad and Congress's ability to abrogate that immunity narrow.[84] Consequently, state universities are immune from suit for damages arising from claims of copyright and patent infringement.[85]

Immunity illustrates why state governments, and not solely state universities, are special for copyright and patent laws. State governments, arguably, engage in their own efforts at innovation. While they cannot enact legislation that conflicts with patent and copyright laws directly or on federal policy grounds, state legislatures can pursue innovation goals through other means, such as supporting start-up businesses or university research and development. University incubators, technology transfer offices, and research funding are examples of state initiatives targeting innovation.[86] Furthermore, when the federal government limits its own support of research and development activities, as it did with funding of stem cell research during the Bush Administration, state governments can fill the gap if they choose. The primary instrument for states driving innovation is the

83. *See* Coll. Sav. Bank v. Fla. Prepaid Postsecondary Educ. Expense Bd., 527 U.S. 666 (1999); Fla. Prepaid Postsecondary Educ. Expense Bd. v. Coll. Sav. Bank, 527 U.S. 627 (1999); Chavez v. Arte Publico Press, 180 F.3d 674 (5th Cir. 1999) (en banc).

84. *See e.g.*, Fitzpatrick v. Bitzer, 427 U.S. 445 (1976); Seminole Tribe of Fla. v. Florida, 517 U.S. 44 (1996).

85. Florida Prepaid v. Coll. Sav. Bank, 527 U.S. at 627, 647-48; *see also* Gary Pulsinelli, *Freedom to Explore: Using the Eleventh Amendment to Liberate Researchers at State Universities from Liability for Intellectual Property Infringements*, 82 WASH. L. REV. 275, 279 (2007).

86. *See generally* Clovia Hamilton, *University Technology Transfer and Economic Development: Proposed Cooperative Economic Development Agreements Under the Bayh-Dole Act*, 36 J. MARSHALL L. REV. 397, 409-12 (2003); Kristen Osenga, *Rembrandts in the Research Lab: Why Universities Should Take a Lesson from Big Business to Increase Innovation*, 59 ME. L. REV. 407, 418-21 (2007).

university. Immunity from copyright and patent infringement allows state entities to incorporate and disseminate federally protected intellectual property in pursuit of their own technology commercialization efforts.

State immunity, however, would not extend to private universities. Perhaps this reflects the view that private universities are often the instruments of federal research initiatives. But that explanation is less than satisfactory. Immunity for state universities may create incentives for joint ventures among private and public universities to pursue regional development efforts. Although we do not find extensive evidence for such ventures arising from the pursuit of immunity, the Court's broad interpretation of the Eleventh Amendment might promote such ventures. More to the point, the different treatment of state and private universities could be seen as a boost to public universities who might better compete with private universities for commercialization projects. This policy justification is undermined by the availability of express waivers of immunity when a private company partners with a state university.[87] Nonetheless, state universities acting unilaterally would find the immunity beneficial.

C. Universities as Patent Enforcers

While the AIA shelters universities as patent infringers, proposed legislation to regulate non-practicing entities protects universities as patent enforcers.[88] Proposed patent reform seeks to punish entities that simply accumulate patent portfolios with no intent to commercialize or practice the patented technologies, but instead have the intent to initiate patent infringement suits that will result in settlements. Proposals for curbing these frivolous lawsuits include heightened pleading standards, automatically awarding attorney's fees if the non-practicing entity loses the lawsuit, and requirements of specificity in both pleading and in any cease and desist letters sent prior to initiation of litigation.[89] Advocates for universities have sought a carve-out for these proposed reforms on the theory that while universities may not commercialize patents, their intent in acquiring a patent portfolio is not to bring frivolous litigation.[90] The advocates' implied argument is even stronger: that patent litigation

87. *See generally* Robert G. Bone, *From Property to Contract: The Eleventh Amendment and University-Private Sector Intellectual Property Relationships*, 33 LOY. L.A. L. REV. 1467, 1489-97 (2000).

88. *See, e.g.*, Innovation Act, H.R. 9, 114th Congress (2015).

89. *See* Innovation Act, H.R. 9.

90. *See, e.g.*, Lee, *supra* note 1, at 39-46.

brought by universities would almost certainly not be frivolous and pursued solely for settlement value. Consequently, patent reform would inappropriately characterize universities as patent trolls and unfairly increase their burden for protecting legitimate patent rights as compared to commercial patent owners. While the AIA creates a carve-out for universities by equating their use with commercial prior users, proposed carve-outs for universities seek to distinguish them from non-commercial users pursuing frivolous litigation.

In constructing the proposed carve-out, the goal is not to characterize universities as another class of commercial entity. Instead, the special status of universities is implicit, and the concern is that universities are unable to exercise their legitimate patent rights. The goal arguably is not to protect universities as the locus for pure research because the argument for exemption rests on the commercial interests of universities to create and own patent portfolios in order to generate a stream of licensing revenue. The second model for understanding universities is implicated in this argument. Commercialization is seen as a means to some unspecified end, rather than an end in itself. As a result, universities need special treatment to distinguish them from other patent holding entities that are not engaged in full-scale commercialization, but instead seek to monetize patents through licensing.[91]

Our discussion of the treatment of universities under patent and copyright laws seems to have come full circle. With respect to patent ownership, universities do not obtain special treatment under the Bayh-Dole and are subject to the same rules of assignment and transfer as other entities. But proposed debates over troll legislation recognize the special reasons why universities own patents. Therefore, university patent ownership requires special treatment in order that patent rights are not lost as universities seek unique ways of monetizing patents without engaging in full-scale commercial use of the patented technologies.

IV. CONCLUSION

Universities are special for patent and copyright laws, at least in some limited ways. This paper, at a minimum, documents the ways in which the law carves out special rules for universities. However, more broadly, the paper shows how these special rules support policies unique to the role of universities in the innovation ecosystem within which they

91. *See* Jeremiah S. Helm, Comment, *Why Pharmaceutical Firms Support Patent Trolls: The Disparate Impact of* eBay v. MercExchange *on Innovation*, 13 MICH. TELECOMM. & TECH. L. REV. 331, 335 (2006).

compete with for-profit entities whose purpose extends beyond pure research. An open question is whether existing special rules are adequate for protecting the interests of universities without balkanizing the federal policies regulating and promoting innovation.

While the focus of this Article is on universities, the broader concern is understanding how intellectual property laws are tailored to various organizational contexts. This topic has not been adequately studied. There is a growing scholarly literature on transaction costs and intellectual property.[92] But the interactions between organizational choice and intellectual property have not inspired as much research as they should. Whether to form a profit or non-profit, to organize as a partnership or a corporation, or to use contractors or employees are business choices that may well be driven by goals of intellectual property. This initial study of universities is a foray into the broader inquiry of intellectual property policy and business organizations. While intellectual property laws may be tailored to choices of business organizations, the case of universities shows how general rules can evolve to accommodate complex institutions with multiple goals that play a critical role in federal and state policies for invention, innovation, and development.

92. *See*, *e.g.*, Richard A. Posner, *Transactional Costs and Antitrust Concerns in the Licensing of Intellectual Property*, 4 J. MARSHALL REV. INTELL. PROP. L. 325 (2005).