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Berkeley Technology Law Journal
University of California, Berkeley
Boalt Hall School of Law
587 Simon Hall
Berkeley, California 94720-7200
(510) 643-6454 (Phone)
(510) 643-6816 (Fax)
btlj@law.berkeley.edu
www.btlj.org

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THE ROLE OF PATENT LAW IN KNOWLEDGE CODIFICATION

By Dan L. Burk†

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I. INTRODUCTION

Patents are problematic. The justification for patenting is less than clear. The grant of exclusive rights[1] in a given technology clearly confers a potential benefit on the rights holder, but equally clearly creates an impediment to others who might wish to employ that technology. In the United States, the constitution authorizes Congress to implement a patent system in order to "promote the Progress of . . . useful Arts."[2] But whether patents in fact promote progress, whether such progress is worth the cost,

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† Chancellor's Professor of Law, University of California, Irvine.

1. 35 U.S.C. § 271(a) (2000).
2. U.S. CONST. art. I, § 1, cl. 8; Graham v. John Deere Co., 383 U.S. 1, 5 (1966).

and under what circumstances, remains the subject of extended, ongoing debate.[3]

The rationale for patenting long favored in judicial opinion is the "*quid pro quo*" theory: that patents are a bargain of sorts, between the inventor and the public, exchanging public disclosure of the claimed invention in return for the grant of a period of exclusive rights.[4] But this explanation has never been entirely satisfactory. As a practical matter, patents are not production documents, and a good deal of the information that the technical community might like to divine from them is either accidentally or purposefully left out of the published patent.[5] Additionally, it is unclear why an innovator would opt to trade disclosure of an invention for less than twenty years of exclusivity, when the alternative of keeping the invention as a trade secret is available in perpetuity.[6] Of course, some inventions cannot be kept confidential enough to be maintained as trade secrets, but in those cases the patent bargain exchanges exclusivity for the disclosure of something that was bound to become public anyway.[7]

Given the difficulties in the disclosure rationale, the dominant justification for the patent system has shifted toward an economic rationale based upon incentives. Under this prevalent view, the grant of exclusive rights deters quick imitation of the claimed invention and allows a period of supernormal profits that help to recoup the investment made in developing the invention.[8] The incentive rationale reasons that innovators will be more likely to make an investment in new technologies if they know beforehand that a legal regime is in place that will afford them the opportunity to recover their investment.

But the most straightforward—or perhaps simplistic—explanation of patents as an innovation incentive fails to account for several characteristics of patents as found in practice. First, given the wide range of innovation profiles across various industries, it is not immediately clear how the same statute can prompt the necessary investment under so many varied

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3. *See generally* FTC, To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy (2003), *available at* http://www.ftc.gov/os/2003/10/innovationrpt.pdf; Nat'l Research Council, A Patent System for the 21st Century (Stephen A. Merrill et al. eds., 2004).

4. *See, e.g.*, J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc. 534 U.S. 124, 142 (2001).

5. *See infra* Section III.A.2.

6. See generally Richard Stern, A Re-examination of Preemption of State Trade Secret Law After Kewanee, 42 GEO. WASH. L. REV. 927, 958 (1974).

7. *Id*.

8. Robert Mazzoleni & Richard R. Nelson, The Benefits and Costs of Strong Patent Protection: A Contribution to the Current Debate, 27 RES. POL'Y 273 (1998).

circumstances.[9] Recent commentary has attempted to offer some perspective as to how the patent system can in fact match incentives to the needs of different industries, but this requires a fairly intricate picture of how different industries experience the patent system and of the institutions that administer the patent system.[10] Additionally, recent scholarship has also noted that the vast majority of patents appear never to be enforced, or even licensed, as one would expect if they are being used to recoup investments in innovation.[11] Commentators have suggested that these apparently unused patents are being procured for other business purposes, such as financing, marketing, or strategic advantage.[12] Extending this insight, other commentators have suggested that patents may play a more complex role in the economics of innovation, lowering transaction costs so as to facilitate more innovative organizational and market structures, rather than simply providing monopoly rents to the holders of exclusive rights.[13]

This emerging body of literature suggests that, as a general matter, the nature and function of the patent system is far more complex, and far more dynamic, than might be predicted by the economics of a neoconservative incentive rationale. This in turn suggests that a reconsideration of the "disclosure" rationale might also be in order: just as a closer examination of the incentive rationale reveals a more complex and nuanced picture than might initially appear, so too a similar reexamination of the disclosure rationale might reveal nuances of the patent system that have gone previously unconsidered. Properly considered, aspects of disclosure or recordation of knowledge might play a more significant role, or at least a more interesting role, in the patent system than the familiar *quid pro quo* account of patenting might entail.

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9. Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERKELEY TECH. L.J. 1155 (2002); Michael W. Carroll, *One for All: The Problem of Uniformity Cost in Intellectual Property Law*, 55 AM. U. L. REV. 845 (2006).

10. Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575 (2003); Christopher A. Cotropia, *"After-Arising" Technologies and Tailoring Patent Scope*, 61 N.Y.U. ANN. SURV. AM. L. 151 (2005).

11. Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495 (2001).

12. Mark A. Lemley, *Reconceiving Patents in the Age of Venture Capital*, 4 J. SMALL & EMERGING BUS. L. 137, 137-148 (2000); Ann Bartow, *Separating Marketing Innovation From Actual Invention: A Proposal For A New, Improved, Lighter And Better-Tasting Form of Patent Protection*, 4 J. SMALL & EMERGING BUS. L. 1, 2-3 (2000).

13. See Dan L. Burk & Brett H. McDonnell, The Goldilocks Hypothesis: Balancing Intellectual Property Rights at the Boundary of the Firm, 2007 U. ILL. L. REV. 575; Paul J. Heald, A Transaction Costs Theory of Patent Law, 66 OHIO ST. L.J. 473 (2005); Robert P. Merges, A Transaction View of Property Rights, 20 BERKELEY TECH. L.J. 1477, (2005).

In this article I suggest one approach to viewing the disclosure rationale from a fresh perspective, by examining the structure and practice of the patent system from the standpoint of knowledge management. In particular, I engage the growing literature regarding tacit and codified knowledge.[14] I argue that many familiar provisions of the patent statute may be viewed as incentives for codification of otherwise tacit knowledge, and that these provisions either intentionally or unintentionally have effects on the balance of codified and tacit technical knowledge. Controversies over patent doctrines, such as the proper standard for nonobviousness, frequently turn on the degree to which tacit knowledge must be incorporated into the patent system. On this view, the costs and benefits of codification, which have been largely ignored in past debates over the efficacy of patents, should be taken into account in either retaining or reforming the current structure of the patent system.

II. THE ECONOMICS OF CODIFICATION

A sizeable body of recent scholarship has examined the dynamics, the qualities, and the incentives attending the collection and preservation of knowledge, most particularly the recordation of knowledge in a stable format. Much of this literature deals with the conditions under which knowledge may be *codified*, that is, articulated and symbolized so as to be recordable in a particular medium.[15] One must be a bit careful with this terminology, as lawyers use the term "codify" to refer to the systemization of legal principles. More recently, in some academic circles "code" has become a term of art referring to the technical features, most especially the architectural constraints, attending the structure of computer software.[16] Each of these uses of the term is related in some degree to the use to which it is put here, but here we are chiefly concerned with the conversion of knowledge to stable symbolic messages.[17]

Recent scholarship has noted the benefits of such codification. For example, one of the primary effects of formal codification is that knowledge becomes separately embodied from human memory. One consequence of such "exteriorization" of the memory is that knowledge becomes detached from individuals, and may be divorced from human transmission. Know-

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14. *See, e.g.*, Robin Cowan & Dominique Foray, *The Economics of Codification and the Diffusion of Knowledge*, 6 INDUS. & CORP. CHANGE 595 (1997); Paul A. David & Dominique Foray, *Economic Fundamentals of the Knowledge Society*, 1 POL'Y FUTURES IN EDUC. 20 (2003).

15. *See* Cowan & Foray, *supra* note 14, at 603; David & Foray, *supra* note 14, at 25.

16. *See, e.g.*, LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (1999).

17. David & Foray, *supra* note 14, at 25.

ledge that is stabilized in a code, rather than is some other medium, takes on durability and tangibility. This in turn implies that codification results in commodification of knowledge, allowing it to be treated more as an object of trade or exchange.[18] Additionally, inscription of knowledge in a code also allows directed reorganization of knowledge, as the modularity of the recorded information allows it to be isolated, classified, and recombined in new arrangements, regularizing the production of new knowledge.[19] These qualities of codification will often, but not always, make codification an attractive option for knowledge management.

A. Costs of Codification

Codification will not always be the preferred option for knowledge management because it entails not only benefits, but significant attendant costs. Codification requires a code, and the development of codes is itself a costly proposition.[20] Creation of a code, effectively the creation of a language, requires the development of concepts, symbols, and syntax, in addition to the physical media for recordation of the text.[21] These costs tend to occur as initial or "start-up" fixed costs, with negligible costs for subsequent use.[22] To some extent these costs follow the familiar structure of network effects: the positive and negative externalities of goods that generate positive externalities as they are adopted by a larger number of users.[23] As codes become established and widely adopted, new users can piggy-back onto those existing systems. Additionally, there may be costs to displacing previous codes, as users will have already invested in those systems and will incur new costs in switching to a new code. Such costs can be lowered substantially by using a standardized or widely accepted code.

Additionally, the use of codes may itself impose certain costs. The network effects of codes have a downside; adopting a particular code may "lock in" users to a system from which it is difficult to change when other

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18. *See* Cowan & Foray, *supra* note 14.

19. *Cf.* YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 100-103 (2006) (discussing flexible modularity of digital information).

20. *See* Robin Cowan et al., *The Explicit Economics of Knowledge Codification and Tacitness*, 9 INDUS. & CORP. CHANGE 211, 247 (2000); Cowan & Foray, *supra* note 14, at 604.

21. *See* David & Foray, *supra* note 14, at 26; Cowan & Foray, *supra* note 14, at 604-05.

22. *See* Cowan & Foray, *supra* note 14, at 604, 612.

23. *See id.* at 612-13; *see generally* Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479 (1998).

alternatives become available.[24] And as a corollary, the necessity of promulgating and maintaining a given code will cause organizations to tend toward greater rigidity and uniformity as a natural consequence of supporting a particular system.[25] Organizations that rely on uncodified knowledge, and so lack the need to maintain the mechanisms of codification, may remain more fluid and entrepreneurial.[26]

B. Tacit Knowledge

Despite the potential advantages of codification, a certain measure of knowledge will remain uncodified. Some types of knowledge may be inherently uncodifiable because some cognitive capacities resist explicit articulation.[27] It may be, for example, that if Tiger Woods were asked to write a manual of instructions describing how he drives a golf ball, that he would be unable to define or explain many aspects of his skill.[28] The precise set of movements and actions that he follows in his golf play may involve some combination of bodily signals, from proprioreceptors to neuromuscular junctions, that simply cannot be explained to another individual. This may be in part because Woods is altogether unaware of the details or components of skills wired into his physiology. Or, it may be that he is aware of his physiological state on some level, but that the sensations and responses cannot be readily described or articulated.[29]

However, much of the knowledge that remains uncodified remains so not because it is inherently impossible to codify, but because it is of a type that is simply too costly to codify.[30] Indeed, the example of Tiger Woods' golf swing or similarly uncodifiable knowledge might simply be viewed as a limiting case in which codification is infinitely costly. Other types of uncodified knowledge might be codified, but the costs of collecting, encoding, recording, and preserving the information is simply prohibitive given the potential value of the resulting information.[31] Knowledge of this type will remain uncodified unless the cost of codification falls, or the ex-

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24. *See* Cowan & Foray, *supra* note 14, at 615-16.
25. *See* Cowan et al., *supra* note 20, at 248.
26. *Id.*
27. *See id*. at 228.
28. *Cf.* Cowan & Foray, *supra* note 14, at 606 (analyzing the codification of a description of a tennis serve); RICHARD R. NELSON & SIDNEY G. WINTER, AN EVOLUTIONARY THEORY OF ECONOMIC CHANGE 77-78 (1982) (analyzing the articulation of instructions on how to land an airplane).
29. NELSON & WINTER, *supra* note 28, at 73.
30. *Id.* at 80.
31. *See id.*

pected value of the encoded knowledge rises, prompting the investment in codification.

Knowledge that resists codification for either of these reasons remains *tacit*, that is, not explicitly recorded as a text or similar code.[32] This is not to say that knowledge which is not codified is necessarily lost, or is inarticulable, or is incommunicable. It is decidedly not to say that knowledge cannot be captured in structures other than a formal code. Tacit knowledge might be conveyed by observation, emulation, or by instinct.[33] It may potentially be captured, stabilized, and transmitted in structures other than a formal code. We have already suggested that the golf acumen of a Tiger Woods might be transmitted by observation, better recorded on videotape than in textual code. Other tacit knowledge may be captured in institutional practices and procedures, or in normative expectations of behavior.[34] It may be captured in actual physical structures: whether the design of tools, the arrangements of architectural spaces, or the layout of farm.[35]

Organizational and social systems constitute an especially important reservoir of tacit knowledge. Such knowledge exists in a community, in common practices or norms that are transmitted orally or by example.[36] Knowledge captured in such practices, although not formally codified, may be stably maintained and transmitted if a pool of acculturated individuals is sustainable.[37] This presents a somewhat different situation than those in which tacit knowledge is held solely in human memory, as the knowledge is not known by any one individual, but is instead maintained in the interactions between individuals. However, such knowledge may be lost or dissipated, even if known by some, if the relational structure of the group lapses.

Cowan et al. have also identified a range of situations in which knowledge has been codified, but then internalized, so that the code is no longer manifest.[38] This fairly common process results in situations with a "displaced codebook," where individuals or communities appear to be relying on tacit knowledge but are in fact relying upon previously codified know-

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32. *See* David & Foray, *supra* note 14, at 25; *see also* NELSON & WINTER, *supra* note 28, at 77-78.

33. *See* David & Foray, *supra* note 14, at 25,

34. *See* Cowan & Foray, *supra* note 14, at 596-97; Cowan et al., *supra* note 21, at 231-36.

35. *See* Cowan et al., *supra* note 20, at 229-30; *see also* Dan L. Burk, *Legal and Technical Standards in Digital Rights Management Technology*, 74 FORDHAM L. REV. 537, 540-42 (2005) (reviewing literature on inscription of artifacts).

36. *See* David & Foray, *supra* note 14, at 25.

37. *See* Cowan & Foray, *supra* note 14, at 601.

38. Cowan et al., *supra* note 20, at 230-33.

ledge that has been internalized.[39] Examples might include communities where jargon and technical terminology is in common usage, even though it may not be found in an explicit record. Such knowledge may be tacit in the sense that no codified version can be identified, but is not tacit in the sense of being uncodifiable or never codified. Such situations also suggest that knowledge may cycle between codified and tacit, shifting from one form to the other as costs and custom dictate.

C. Consequences of Codification

Several consequences follow from these insights regarding the costs and benefits of codification. The first consequence flows from the observation that a great deal of knowledge, perhaps the majority of knowledge, will go uncodified, occasionally because it cannot be codified, but more often because codification is too costly. This means that for any given body of knowledge, the question of codification will not be a binary choice between whether or not to codify. Rather, the question will always be one of how much to codify, and of establishing an equilibrium between codified and uncodified knowledge.[40]

A second and critical corollary that follows from the first is that all codified knowledge will be attended and supported by a constellation of uncodified knowledge. At a minimum, knowledge of how to read the code will remain uncodified[41]; codifying such knowledge leads to an infinite regress that cost will bring to an end at some level of meta-codification. But even codified substantive knowledge will represent only the tip of the knowledge iceberg, supported, buttressed, and amplified by large bodies of uncodified knowledge that as a practical matter cannot or has not been codified.

Given the equilibrium between codified and uncodified knowledge, it also bears mentioning that in some cases the reverse will be true: that tacit knowledge will be supported by codified knowledge. As an example of tacit but captured knowledge, I mentioned above the example of a tool—perhaps a golf club—that embodies knowledge about how a certain task is best performed, about interactions with a human user, and perhaps about the nature of the environment or materials that it will be used to manipulate.[42] But the intended use and advantages of the tool may not be immediately apparent to the potential user. It is fairly common for such a tool to be accompanied by codified instructions and documentation *about* the

39. *Id.* at 232.
40. *See* Cowan & Foray, *supra* note 14, at 600-01.
41. *Id.* at 600.
42. *See* Cowan et al., *supra* note 20, at 229-30.

tool, intended to guide the user, and supporting the tacit knowledge embedded *in* the tool.[43]

A third corollary flows then from the characteristics of codified and uncodified knowledge identified above. Given that some knowledge, and possibly a great deal of knowledge, about a subject will necessarily remain uncodified, and that this knowledge supports and amplifies the codified portions, it will be difficult to move comprehensive knowledge about a topic between settings. We have already seen that codified knowledge, having been separated from human memory, may be more readily moved about, but the uncodified knowledge that supports this codified knowledge moves only with the humans who carry it, or sometimes not at all. In particular, distributed knowledge that has been captured in social structures, organizations, norms and practices may be difficult to move along with the codified items. Thus the availability and feasibility of codification is closely tied to industrial issues such as employee mobility: movement of codified information may be a complement to, rather than a substitute for, the movement of human capital.

III. PATENTS AND CODIFICATION

Having sketched a general framework for the incentives and economics of knowledge codification, I turn now to application of that framework to regimes of intellectual property, and most especially patent law. Previous commentators on the economics of knowledge production have noted only in passing some few implications of this framework for intellectual property. Cowan et al. mention the effects of trade secrecy in policing the movement of tacit knowledge[44] and also the practical effects of patent law's *quid pro quo* exchange of exclusivity for disclosure.[45] The first point has implications for the movement of skilled employees in "high velocity" employment markets[46]; the second has implications for the licensing of tacit knowledge that supports the codified knowledge in patents.[47] Both points are highly significant, although substantially unelabo-

43. *Id.*

44. *Id.* at 223-24.

45. *Id.* at 224.

46. *See* Alan Hyde, Working in Silicon Valley: Economic and Legal Analysis of a High-Velocity Labor Market (2003); AnnaLee Saxenian, Regional Advantage: Culture and Competition in Silicon Valley and Route 128 (1996); Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U. L. Rev. 575 (1999).

47. Ashish Arora & Robert P. Merges, *Specialized Supply Firms, Property Rights, and Firm Boundaries*, 13 INDUS. & CORP. CHANGE 451, 468 (2004).

rated. Both are closely tied to the growing realization that quite apart from its purposes as an innovation incentive, intellectual property may have important effects on the structure of firms and of industries.

In previous work, I have explored aspects of each of these points, including the effects of intellectual property regimes on the balance of transaction costs internal and external to firms.[48] Taking into account the effects of codification clarifies certain dimensions of such transaction cost analyses. For example, we have noted above that codification commodifies knowledge, allowing it to be maintained and moved separately from individuals who would otherwise hold it. Conversely, if the knowledge in a firm is not codified, if it remains tacit, then it resides largely with employees. Tacit knowledge may be maintained within a "thick" labor market of workers who move information between firms.[49] This appears to be the norm in certain "high velocity" employment markets, such as Silicon Valley, where skilled employees move with relative ease between firms.[50] There would seem to be less incentive for codification where knowledge can be tacitly maintained in the labor force.[51] But as I detail below, the presence of the patent system may tip the scales toward codified rather than tacit transmission; indeed it may be observed doing so in fields such as software, where the availability of patents is relatively recent compared to the accumulated tacit knowledge in the field.

Thus, combining perspectives from knowledge codification with a detailed understanding of patent law adds an important dimension to these previous studies. Patent law engages the boundary between tacit and codified knowledge at several junctures. Some of these involve the patent document itself as a code, or the incentives to codify knowledge within the patent application, or published patent. Yet other doctrines deal with the balance between codified and tacit knowledge in the technological field of the patented relevant to the patent, that is with the knowledge in the prior art. Yet other aspects of patent law involve the incentives to codify or maintain knowledge regarding the process of invention, or leading to a patentable invention. In the following sections, I review examples of each of these circumstances, and then consider the temporal and institutional issues common to all of them.

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48. *See* Dan L. Burk, *Intellectual Property and the Firm*, 71 U. CHI. L. REV. 3 (2004); Burk & McDonnell, *supra* note 13.

49. *See* Cowan et al., *supra* note 20, at 241.

50. *See* HYDE, *supra* note 46, at 50.

51. *See* Cowan et al., *supra* note 20, at 240-41.

A. Patents as Code

We begin by considering the purpose and nature of codification in patent documents themselves. As described above, much of the knowledge held in any field of endeavor will be either tacit knowledge, or codified knowledge for which the code book has been displaced. In the patent context, this situation emerges in fields where codified but unrecorded knowledge is ubiquitous. Such situations are manifest as a common complaint among technical personnel in software, or biotechnology, or some other field, that a particular invention must be obvious because "everyone knows" in that field how to make or use the product or the method described in the claims of a patent.[52] Yet what "everyone knows" may not have been codified into a tangible reference that can be evaluated by a court or by a patent examiner. Failure to codify or record knowledge may occur in fields where codification is unduly expensive for the reasons already identified: lack of an existing code, difficulty of articulation, or similar barriers that make the comparative cost of tacit transmission more attractive.

But these comparative costs of codification may be shifted by the patent system itself, making codification more attractive. This is perhaps most clear in the application of patents to new subject matter since the decision of the United States Court of Appeals for the Federal Circuit in *State Street Bank* expanded patentable subject matter to any human innovation producing a useful result.[53] It should not be surprising that much of the concern over the patenting of what "everyone knows" occurs in fields that are not necessarily new themselves, but which are relatively new to the patent system. As the subject matter of patents has expanded, patent law has increasingly moved into areas where codification is difficult or expensive, or where formal codes have otherwise been slow to develop. Returning to the previous example of Tiger Woods's golf prowess, sports moves have now been patented under the permissive subject matter standards articulated by the Federal Circuit.[54] Certainly "how to" books exist

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52. *See* James Gleick, *Patently Absurd*, NY TIMES MAGAZINE, March 12, 2000, §6 (Magazine), at 47.

53. State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1373 (Fed. Cir. 1998); *see also* Alan L. Durham, *"Useful Arts" in the Information Age*, 1999 BYU L. REV. 1419 (1999); John R. Thomas, *The Patenting of the Liberal Professions*, 40 B.C. L. REV. 1139 (1999).

54. *See, e.g.*, U.S. Patent No. 6,019,689 (filed May 13, 1998); U.S. Patent No. 5,913,738 (filed Aug. 8, 1997); U.S. Patent No. 5,616,089 (filed Mar. 29, 1996); *see also* Carl A. Kukkonen, III, *Be a Good Sport and Refrain from Using My Patented Putt: Intel-*

for sports training, but much of the knowledge in such fields appears to be passed on orally or via observation, and as suggested above, some such knowledge may be altogether uncodifiable.

Bringing such subject matter into the ambit of patent law potentially moves such codifiable but uncodified knowledge into patent applications. But this requires the development of codes that will carry such knowledge, codes that have presumably gone previously undeveloped because the cost was not worth the trouble. The new possibility of patenting changes that calculus. Thus, the true innovation in such fields may be the articulation of the knowledge and development of a code sufficiently precise to allow codification of the knowledge in a patent application. The patent incentive may spur *codification* rather than invention.

1. Patents as Standards

One benefit of such codification derives naturally from the literature on transaction cost economics mentioned above. Patents themselves incorporate standardized terminology that is recognized by members of the patent drafting community as having an established meaning. Patents may therefore provide a common code for purposes of licensing or similar negotiations. Because of statutory and regulatory requirements, as well as common practice among the community of patent attorneys and agents, the format of a patent is relatively uniform. In licensing negotiations, a licensor dealing with a patented technology typically faces a document that offers a fairly standardized presentation: common jargon, structure, and layout. This may offer a considerable savings over having to examine and interpret idiosyncratic technical documents from different technology holders. Significantly, the licensor is likely to be advised by a patent attorney or agent familiar with the "code" used in patent documents, so that in some sense the patent may offer a common code between members of the patent legal community, who will be translating the code for their clients.

This is not to say that patents are entirely transparent, or that every aspect of a patented technology will be apparent within the four corners of the document. We have seen as a general principle of codification that this is neither possible nor desirable: codified knowledge is always accompanied by, buttressed by, and enabled by tacit knowledge. Consequently, not all the pertinent information regarding an invention will be found in a patent, and indeed patent doctrines recognize this principle. Courts have repeatedly emphasized that patents are not "production specifications,"[55]

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lectual Property Protection for Sports Related Movements, 80 J. PAT. & TRADEMARK OFF. SOC'Y 808 (1998).

55. *See, e.g.*, *In re* Gay, 309 F.2d 769, 774 (C.C.P.A. 1962).

meaning that the inventor need not include every detail of the invention in the disclosure. Rather, the disclosure of the patent relies upon the knowledge of those having skill in the art; the inventor is not required as a matter of patent law to explicitly incorporate into the document commonly held, tacit knowledge.

But neither is the inventor likely to, or required to, include tacit knowledge that is *not* commonly held. Information specific to the invention will inevitably be left out of the patent disclosure. Such omissions need not necessarily involve any bad faith in the invention disclosure; a full disclosure of the best mode of practicing, say, a claimed production device may not necessarily disclose the organizational structure, spatial positioning, or employee scheduling that will put the device to its fullest use. Sophisticated licensors know that there is a good deal of tacit knowledge behind the codified knowledge in the patent document, and they will negotiate for transfer of that knowledge as well. Licenses routinely include provisions for the transfer, protection, and updating of know-how incident to the patent. But given that the knowledge is tacit, how is a licensor to know what may be available, or whether the licensee is holding out? The patent may provide a concrete point of reference from which potential licensors may extrapolate, or "read between the lines" to determine what other, tacit, information is likely to have been developed. Thus, previous commentators have suggested, the codified knowledge of the patent may be only the starting place for actual negotiations over tacit know-how that is necessary and contextual to make the patented technology function.[56]

2. *Disclosure Provisions*

The expectation that some knowledge will remain tacit, unincorporated in the patent document, and an expectation regarding the proper balance between codified and uncodified knowledge, are implicit in the patent law's disclosure provisions. The patent statute requires a "written description" of the invention—which may include not only text but drawings[57]—sufficient to enable one of ordinary skill to make and use the claimed invention.[58] Disclosure of the "best mode" that the inventor knows of practicing the invention is also required.[59] With regard to written description, it may be worth noting that in the case of plant patents, it was

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56. *See* Ashish Arora, Contracting for Tacit Knowledge: The Provision of Technical Services in Technology Licensing Contracts, 50 J. DEV. ECON. 233, 246 (1996).

57. 35 U.S.C. § 112 (2000); Vas-Cath v. Mahurkar, 935 F.2d 1555, 1565 (Fed. Cir. 1991).

58. 35 U.S.C. § 112.

59. *Id.*

decided that the features of ornamental plants may not be amenable to textual description[60] so that pictures of the plants are substituted in the specification instead—put differently, the type of knowledge needed to specify a plant patent resisted codification, at least symbolic textual codification, so direct observation was needed.

Where textual disclosure is concerned, an issue arises as to what tacit knowledge the hypothetical person having ordinary skill in the art, or "PHOSITA," might bring to bear on the problem of making and using the claimed invention.[61] The PHOSITA, found in the patent statute, is emblematic of the knowledge held by the community in a given technological field.[62] The disclosure requirement for patents is couched in terms of the PHOSITA's knowledge. This in turn implicates the tacit knowledge held by the technological community. The explicit disclosure of the patent specification is necessarily embedded in the matrix of information that lies outside the document; it is neither practical nor desirable for the patent disclosure to comprehend the entire technical field. Some information outside the document may be "incorporated by reference"; that is, the patent may refer the reader to other codified references.[63] But the PHOSITA's ability to make and use the invention described in the patent may also depend upon uncodified information. For example, courts have held that the inventor can rely on the general level of skill in the art to allow the PHOSITA to comprehend and follow the direction of the patent disclosure.[64] Similarly, the inventor need not specify all the inoperable embodiments that might be encompassed in the claims if the level of skill in the art will allow the PHOSITA to avoid such embodiments of the invention.[65]

Patent disclosure doctrine also addresses the development of codes as a matter of claim definiteness. The inventor is required to communicate the metes and bounds of her invention in formal written claims.[66] The le-

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60. 35 U.S.C. § 162 (2000).

61. 35 U.S.C. § 112.

62. John O. Tresansky, *PHOSITA—The Ubiquitous and Enigmatic Person in Patent Law*, 73 J. PAT. & TRADEMARK OFF. SOC'Y 37 (1991); *see also* ROBERT L. HARMON, PATENTS AND THE FEDERAL CIRCUIT § 4.3 (5th ed. 2001); Joseph P. Meara, Note, *Just Who Is the Person Having Ordinary Skill in the Art? Patent Law's Mysterious Personage*, 77 WASH. L. REV. 267 (2002). The first known use of the acronym PHOSITA appears to be in Cyril A. Soans, *Some Absurd Presumptions in Patent Cases*, 10 IDEA 433, 438 (1966).

63. MPEP § 201.17 (2006); 37 C.F.R. § 1.57 (2007).

64. *In re* Wands, 858 F.2d 731, 735 (Fed. Cir. 1988).

65. Atlas Powder Co. v. E.I. Du Pont de Nemours & Co., 750 F.2d 1569, 1576 (Fed. Cir. 1984); *In re* Dinh-Nguyen, 492 F.2d 856, 858-59 (C.C.P.A. 1974).

66. 35 U.S.C. § 112 (2000).

gal standard requires that the language of the claims must be sufficiently definite to put the reader of ordinary skill on notice as to what technology is encompassed by the patent, warning the reader as to what is off limits.[67] The doctrine of claim definiteness entails both a public notice function and a rights limiting function. Definite claim language not only warns the public away from the patented technology, it also constrains the inventor from dominating more than she is entitled to; the rights of the patent holder extend to that which is stated in the claims and no more.[68]

In constructing claims, the maxim in patent law is that "the patentee is his own lexicographer,"[69] that is, that the inventor is free to use whatever language he chooses to describe his invention. He is free to make up new terminology, or to use old terminology in new ways.[70] The caveat of course is that the language the inventor chooses must be understood by others, so that if the inventor chooses to develop new language, or to repurpose old language, he must define his terminology in that patent. That is to say, he is welcome to develop a new code, so long as he makes the code book available in the published document in which it is used.

We have already noted that the development of codes is costly, so that it is frequently desirable to economize on codification by capitalizing on the positive externalities of established codes. The patentee is also free to go this route, using terminology that is already in use in the pertinent art.[71] The language of the patent may therefore rely on extrinsic texts: manuals, journals, and textbooks that have separately codified terminology pertinent to the patent. For that matter, the patentee may rely upon uncodified knowledge in use among those of skill in the art.[72] This will largely be jargon or other knowledge previously codified, for which the codebook has been displaced.[73] The codebook for such terminology can, if necessary, and at some deferred cost, be attested to by affidavit or testimony at some time subsequent to the drafting of the patent—in other words, production of the codebook can be delayed until the patent is challenged. What is decidedly not permitted is for the inventor to develop the codebook "on the fly" as it were, after the patent has been challenged.

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67. Permutit Co. v. Graver Corp., 284 U.S. 52, 60 (1931).

68. General Elec. Co. v. Wabash Appliance Corp., 304 U.S. 364, 369-70 (1938).

69. Merck & Co., Inc. v. Teva Pharm. USA, Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005).

70. CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002); Elekta Instrument S.A. v. O.U.R. Scientific Int'l, 214 F.3d 1302, 1307 (Fed. Cir. 2000).

71. *See* Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc).

72. *See, e.g.*, Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1575-76 (Fed. Cir. 1986).

73. *See supra* notes 37-38 and accompanying text.

However, the patentee who relies upon a displaced codebook, or upon other tacit knowledge, runs the risk that a codebook cannot be produced upon demand, leaving him with undefined terminology and a fatally indefinite patent. This could of course occur simply because of underestimating the cost of generating the codebook. But it is also a risk inherent in relying on tacit knowledge, which is carried by oral transmission or similar mechanisms in a shifting population. As mentioned above, codification has the virtue (or vice) of stability, tacit knowledge has the virtue (or vice) of mutability. By not reducing the needed code to a stable form at an early date, the patentee runs the risk that it may be lost or irretrievably altered by the time the patent is challenged.

B. Tacit Knowledge in the Prior Art

Patent law also considers the codification of knowledge outside the patent document itself, in related technical literature. In order to qualify for a patent, a claimed invention must meet statutorily defined criteria of novelty,[74] nonobviousness,[75] and timely application (statutory bar).[76] These requirements for patentability are defined and assessed according to prior art references that are specified in the statute. Prior art references are specified in terms of a combination of characteristics: by class of reference, by geographic origin, and by critical date. For example, some statutory provisions include within the prior art the public use of the claimed invention,[77] while others define the prior art in terms of printed publications[78]; some provisions limit the prior art to references published in the United States,[79] while other provisions include within the prior art references published in foreign countries[80]; some provisions define the prior art as references arising before the date of invention,[81] while other provisions define the prior art as references arising more than one year before the date an application is filed.[82] Different combinations of characteristics specify prior art references for different patentability criteria: public uses of the claimed invention in the United States more than one year before the date invention are part of the prior art for novelty but not for statutory bar.[83]

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74. 35 U.S.C. § 101 (2000).
75. *Id.* § 103 (2000).
76. *Id.* § 102 (2000 & Supp. II 2002).
77. *Id.* § 102(a) (2000).
78. *Id.* § 102(a), (b) (2000).
79. *Id.* § 102(a).
80. *Id.* § 102(a), (b).
81. *Id.* §§ 102(a), 103(a) (2000).
82. *Id.* § 102(b).
83. *Compare* 35 U.S.C. § 102(a) (2000), *with* 35 U.S.C. § 102(b) (2000).

The statutory criteria for patentability primarily contemplate codified references as constituting their prior art. For example, both the novelty and statutory bar provisions of the statute designate patents and printed publications published prior to their respective critical dates as relevant prior art.[84] However, the novelty provision also contemplates, at least nominally, tacit knowledge as relevant prior art. If the claimed invention is either "known" or "used" by others besides the inventor in the United States prior to the date of invention, the invention lacks novelty.[85] Both knowledge and use under this provision appear to include tacit knowledge. The usual rationale for allowing tacit prior art references from within the United States, but not from foreign sources, has been a stability rationale: when the statute was drafted in the nineteenth century, codified information from outside the United States was deemed reliably fixed, whereas tacit knowledge carried from abroad was deemed less reliable.[86] On this theory, the codification requirement represented an implicit judgment about the stability of knowledge transmission; a higher degree of stabilization was deemed necessary for information circulating internationally, as opposed to that circulating within the United States. Given the changes in mobility and communications technology, one might question whether this judgment still holds in the 21st Century.[87]

Other statutory sections are less explicit about the types of references against which their requirements will be assessed, but the balance of tacit and codified knowledge is implicit in these standards as well. For example, as in the case of patent disclosure, the obviousness provision of the statute is evaluated against the knowledge base of the statutory PHOSITA.[88] We have already noted that the PHOSITA is a fictional composite, a conceptual construct imagined for the purpose of assessing the claimed invention against its technological antecedents.[89] To a large degree, this legal fiction might be said to consist of the explicit references in a technological field; certainly the documents available largely determine how a court constructs the PHOSITA standard in a given instance. For example, the PHOSITA is presumed to know all of the relevant prior art, that is, all

84. *Compare* 35 U.S.C. § 102(a), *with* 35 U.S.C. § 102(b).

85. 35 U.S.C. § 102(a) (2000).

86. Donald S. Chisum, *Foreign Activity: Its Effect on Patentability Under United States Law*, 11 INT'L REV. INDUS. PROP. & COPYRIGHT L. 26, 33-42 (1980).

87. *Cf.* Margo A. Bagley, Patently Unconstitutional: The Geographical Limitation on Prior Art in a Small World, 87 MINN. L. REV. 679 (2003). *But see* Craig Allen Nard, In Defense of Geographic Disparity, 88 MINN. L. REV. 221, 224-26 (defending geographic disparities in U.S. patent law on utilitarian grounds).

88. 35 U.S.C. § 103 (2000); Graham v. John Deere Co., 383 U.S. 1, 17 (1966).

89. *See supra* notes 61-64 and accompanying text.

of the codified knowledge in the field relevant to the patentability of the claimed invention.[90]

But a recurring theme in the PHOSITA doctrine is the extent to which the knowledge held by those of ordinary skill exists outside the documents that are before an adjudicator. In other words, there is an issue regarding what knowledge held by the PHOSITA may be tacit rather than codified, and how such tacit knowledge can be identified. By its nature, tacit knowledge is difficult to identify and evaluate. A court or other patent evaluator is not expert in the various technological fields that come before it, and knows only what it can see in the documents presented. Although tacit knowledge must clearly be a part, and perhaps an important part, of the skill and knowledge available in a given field, the evaluator can for the most part only rely upon codified knowledge in the evaluation of the technology. Consequently, in order to be evaluated, previously tacit knowledge must become codified, at least to some extent, or remain invisible to an obviousness analysis.

Viewed in this light, the recent controversy over the proper standard for assessing obviousness is similarly grounded in the consideration of tacit and codified knowledge. In its recent decision in *KSR*, the United States Supreme Court reviewed the nonobviousness standard for patentability.[91] Unlike the standard for novelty, which requires all the elements of the claimed invention to be found in a single codified reference, the standard for obviousness allows for the combination of references: different characteristics of the invention may be found in separate references that are considered together to determine obviousness. The question is then whether, at the time the inventor combined those characteristics to obtain the claimed invention, it would have been obvious to the PHOSITA to have likewise combined the references. This inquiry is of course simplest if there is some explicit—which is to say codified—suggestion in the prior art that the references could be combined. But more often there is nothing explicit suggesting such a combination. The knowledge that might have led to combination remained unrecorded, tacit, leaving the question of whether tacit knowledge could be identified and relied upon to determine obviousness.

Over its first two and a half decades of patent law decisions, the United States Court of Appeals for the Federal Circuit (CAFC) came down fairly strongly on the side of codified knowledge for determining obvious-

90. *In re* Rouffett, 149 F.3d 1350, 1357 (Fed. Cir. 1998); *In re* GPAC Inc., 57 F.3d 1573, 1579 (Fed. Cir. 1995).

91. KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007).

ness. The court developed doctrines that entailed a strong preference either for suggestions that were explicit in the prior art, or that constituted a "proven teaching, suggestion, or motivation"; the so-called "TSM" test.[92] The CAFC's decisions in theory recognized tacit, or implicit suggestions but in fact favored suggestions to combine that had been codified or at most, codified and displaced. The emphasis on codified suggestions of course resulted in a broader swath of inventions being declared nonobvious, as much of the knowledge in a given technology will be tacit, and the lack of recorded suggestions created a default in favor of nonobviousness. This became particularly apparent as patent law moved into new subject matter areas, such as business methods and software, that either did not lend themselves to codification, or which had irregular codification practices.

In reviewing these policies, the Supreme Court's *KSR* opinion shifted the test for obviousness away from favoring codified knowledge toward greater acceptance of tacit knowledge. The language of the opinion is replete with recognition of the role of tacit knowledge. The Court repudiated the Federal Circuit's emphasis on "precise teachings"[93] in the prior art and instead directed greater consideration of "inferences and creative steps that a person of ordinary skill in the art would employ."[94] The Court noted that "[i]n many fields it may be that there is little discussion [in the literature] of obvious techniques or combinations."[95] The Court held that the Federal Circuit's application of the TSM test "overemphasi[zed] . . . the importance of published articles and the explicit content of issued patents."[96] Rather, obviousness analysis should consider the "effects of demands *known* to the design community or *present in the marketplace*; and to the *background knowledge* possessed by a person having ordinary skill in the art."[97]

From the standpoint of knowledge management, this standard is in some sense more realistic than the codification-focused standard of the Federal Circuit; the Supreme Court recognized the presence of tacit knowledge among those of skill in the art, directing lower courts to take such knowledge into account in assessing obviousness. But it effectively trades a more complete account of knowledge in the prior art for the problems that attend determination of tacit knowledge. As I shall take up in greater

92. *Id.* at 1734.
93. *Id*. at 1741.
94. *Id.*
95. *Id.*
96. *Id*.
97. *Id.* at 1731 (emphasis added).

detail below, reliance upon tacit knowledge creates certain practical and institutional problems as to how an adjudicator can take into account knowledge that has not been reduced to a stable, accessible form.[98]

C. Codifying Conception

In addition to affecting the patent itself and the associated prior art, patent law impacts the codification of knowledge related to the inventive process. Under the first-to-invent system currently employed by the United States, a conflict between multiple claimants applying for a patent on the same technology is resolved according to proof of earliest inventive activity.[99] In most of the world, such a conflict would be resolved in favor of the earliest applicant as established by the receipt of a patent application at the patent examining office. But in the United States, priority of application is only one piece of evidence considered in awarding the patent; a later applicant, or "junior party" may receive the patent by demonstrating the earliest evidence of invention. Generally, conception, or mental formation of the invention's design,[100] is the key event determining priority of invention, although the reduction to practice of the invention and the diligence of a junior party in reducing the invention to practice also bear on the question of priority.[101]

This method of awarding a patent ultimately requires a type of proceeding, the interference, by which the Patent Office collects and evaluates temporal evidence of invention.[102] Such a proceeding necessarily implicates matters of knowledge codification. The patent application itself provides a record of inventive activity, so the date of application provides a starting point for considering priority. The application also establishes constructive reduction to practice, on the theory that the application contains the necessary information to allow one of ordinary skill to make and use the invention, even if no one has ever actually done so.[103]

But if activity prior to the date of application is to be relied upon, there must be some record of that activity. Although conception is essentially a mental act, the Patent Office cannot realistically evaluate a purely mental act; it can evaluate only a record of that act. Thus, conception, for example, may be established by detailed documents recorded contemporaneous-

98. *See infra* notes 109-114 and accompanying text.
99. 35 U.S.C. § 102(g)(1) (2000).
100. Singh v. Brake, 222 F.3d 1362, 1367 (Fed. Cir. 2000).
101. *Id.* at 1370.
102. *See* 35 U.S.C. § 135(a), (b) (2000); 37 C.F.R. §§ 1.607-1.608 (2004).
103. *See* Porter v. Louden, 7 App. D.C. 64, 70 (1895).

ly with the date they are intended to establish.[104] Some aspects of invention might be established by codification of knowledge after the fact, through interrogatories or deposition of testimonial evidence,[105] but the evidentiary core of conception requires contemporaneous codification of the inventions claimed characteristics.[106] To some extent, the same is true of the other activities, such as diligence and reduction to practice, that bear upon the process of invention.[107] This means that, unlike other countries where the patent application priority is based upon the receipt of the patent application alone, in the United States, priority is ultimately based upon other codified references that can be evaluated by the Patent Office.

Priority of invention may also be used offensively, rather than defensively, that is, to challenge the validity of a patent rather than to establish a claim to a patent. An existing patent may be challenged by showing that the recipient was not the first inventor, but rather that someone else was. In the United States, such a challenge would be brought in court, making a court rather than the Patent Office the institution to evaluate the evidence of inventive activity. But invention would be established by the same events: conception, reduction to practice, and diligence; and the need for recorded evidence of those events would be the same.[108]

The first-to-invent system thus creates its own set of incentives for codification. For example, in anticipation of a possible priority contest, most well-informed research and development operations have in place a system of contemporaneous recordkeeping, including witnessed and countersigned research documents that could be used to establish the dates of conception for patentable technologies. Good scientific and engineering practice dictates the maintenance of notebooks and research logs, but the demands of proving patent priority go well past standard research practice. The recording, witnessing, dating, and countersigning of research notebooks and other documents is costly, if only in the recordkeeping burden that it places upon research personnel.

Such expenditures are not necessarily a bad practice. Although costly, more meticulous laboratory practice and recordation might be regarded as a social benefit, in this case prompted by the patent system. The first-to-invent system may be viewed as rewarding early codification of technical

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104. *See* Gould v. Schawlow, 363 F.2d 908, 911-12 (C.C.P.A. 1966).

105. *See* Gianladis v. Kass, 324 F.2d 322, 326-27 (C.C.P.A. 1963).

106. *See* Mahurkar v. C.R. Bard, Inc., 79 F.3d 1572, 1577-78 (Fed. Cir. 1996); Price v. Symsek, 988 F.2d 1187, 1194-95 (Fed. Cir. 1993).

107. 37 C.F.R. § 41.204(a)(2) (2007); Mikus v. Wachtel, 504 F.2d 1150, 1151 (C.C.P.A. 1974)

108. 35 U.S.C. § 102(g)(2) (2000).

knowledge, and this may be a desirable outcome if independent stabilization and transmission of knowledge is an important social goal. However, the codification expenditures prompted by the need to safeguard patent priority may possibly be wasteful if knowledge in the field is better held or transmitted in other, tacit stabilizing structures. As noted previously, some knowledge will always remain tacit, but the potential for obtaining a patent—or, perhaps more to the point, the threat of losing a patent in a priority contest—shifts the boundary of tacit and codified knowledge within a given innovation project.

IV. EVIDENTIARY CODIFICATION

A common theme running through the patent doctrines considered above is one of timing and venue for codification. For example, we have noted that section 102(a) of the patent statute contemplates uncodified novelty references, and that the PHOSITA standard for nonobviousness and enablement may take tacit knowledge into account.[109] However, ironically, in order for either the Patent Office or a court to evaluate such tacit knowledge, some degree of codification must occur; there must be a written reference for the decision maker to evaluate at the time a patent application is examined or an issued patent is challenged. Tacit knowledge must be identified and recorded as an affidavit, deposition, or similar document. Thus the existence of, say, a novelty reference as tacit rather than codified knowledge is primarily a temporal question: the ostensibly tacit prior art categories in the novelty provisions are in fact directed to knowledge that was tacit at the time of invention, but which necessarily becomes codified by the time of evaluation. This in turn means that institutional review of the references is dependent upon the cost of codifying tacit knowledge; the references that will be assessed in determining novelty are those for which some investment was made in codification.

Such codification investments turn on the applicable incentives. Some references may be too expensive to codify, for reasons indicated above: there may be no existing code, the references may not be the type of knowledge easily codified, or the search costs to locate the uncodified knowledge will be too high. The comparative advantage that might prompt location and codification of such knowledge may of course arise out of the value to be gained by challenging the patent, or in some cases, to be gained in successfully defending the patent. The prospect of challenging a patent may therefore create an incentive toward codification of certain references. Some commentators have argued that more valuable patents are

109. *See supra* notes 63-65, 84-87, 93-98 and accompanying text.

more likely to be challenged[110]; the corollary may be that more valuable patents are, especially if challenged, more likely to prompt codification of tacit information associated with that technology.

While evaluation or adjudication of patents requires codification of knowledge, tacit knowledge remains an integral part of evaluation or adjudication. An evaluating or adjudicatory body for the most part relies upon codified knowledge. Some institutions, primarily the courts, have developed processes for considering oral testimony—although even oral testimony is transcribed. But much of the deference paid to courts in appellate review of factual findings relies upon the expectation that a good deal of important knowledge about witnesses and evidence will remain untranscribed, tacit, and so unreviewable on an appellate record. Patent examiners may also rely on some tacit knowledge, informally, to the extent that this is conveyed in examiner interviews—and they receive no real deference for such tacit input under current appellate practice. At least part of the controversy over the agency status of the USPTO in appellate review[111] might be considered in such terms; while the controversy has been cast in terms of the agency's expertise in identifying and evaluating codified knowledge,[112] it could be thought of in terms of the *uncodified* knowledge that the agency considers and which is not or cannot be conveyed to a reviewing court in an appellate record.[113]

This recognition leads to some important questions of institutional design. While certain aspects of patent office practice, such as interference practice, entail deposition and similar oral discovery mechanisms, the *ex parte* USPTO examination process lacks most of the processes that exist in trial courts for developing codified knowledge. An examiner is largely dependent on the applicant to codify necessary tacit knowledge in the form of affidavits or similar documents. The existence of codification mechanisms in the court system is of course one of the reasons that litigation is costly: codification is a costly process. Were similar mechanisms to be incorporated into the examination process, for example in the form of *inter partes* intervention in the patent application process, the cost of the examination process would necessarily increase.

The necessity of creating a stable documentary record for appellate review is of course not unique to patent prosecution—this is to some extent a common problem in creating an evidentiary record in any adjudication.

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110. Lemley, *supra* note 11, at 1527.

111. *See* Dickinson v. Zurko, 527 U.S. 150, 154 (1999).

112. *See* Stuart Minor Benjamin & Arti K. Rai, Who's Afraid of the APA? What the Patent System Can Learn from Administrative Law, 95 GEO. L.J. 269, 309-10 (2007).

113. *See In re* Lee, 277 F.3d 1338, 1344-45 (Fed. Cir. 2002).

But it is a particular problem in patent law where the statute requires evaluations to be made against the sum of knowledge in entire technological fields. The lack of codified knowledge presents an ongoing problem in the Patent Office, where examiners may make a patentability determination relying on their own expertise in a field rather than on an explicit reference. Some provision is made for examiners to rely on their personal knowledge of the art, but such reliance requires codification of that knowledge as an affidavit.[114] Examiners are technically trained, but the technical training of examiners seems intended to only direct them in finding and recognizing codified references, and not to incorporate into their examination whatever tacit knowledge they may share with the rest of their technical community.[115]

V. CODIFICATION AND PATENT REFORM

The questions of institutional design raised by a codification perspective lead naturally to consideration of what insights this approach might offer on matters of patent reform, and related considerations for small or entrepreneurial innovators. To date, proposals for patent reform have been largely driven by concerns over the costs of litigation, or over costs arising from the potential for litigation when firms are threatened by patent holders.[116] Other adjudicatory costs, such as those for interferences, prompt similar concerns.

But costs of adjudication are not the whole picture, and when taken in context may not even be the most significant part of the picture. An illustration from another field provides a useful parallel. Commentators analyzing the social impact of nuclear weapons technologies have pointed out that while the consequences of actually using nuclear weapons would of course be staggering, focusing on the use of such weapons or even the threat of using such weapons may hide their real social costs.[117] Even unused, the cumulative social and economic costs of developing, maintaining, and controlling such weapons is extremely significant, and is incurred on a daily basis so long as the weapons systems exist. In particular, main-

114. 37 C.F.R. § 1.104(d)(2) (2007).

115. *In re* Lee, 277 F.3d at 1345.

116. *See* James Bessen & Michael J. Meurer, Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovation at Risk 130-44 (2008).

117. Donald A. MacKenzie, Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance 382-409 (1st ed. 1990).

taining the organizational structures that support the tacit knowledge for nuclear command and control is a significant ongoing cost.[118]

Similarly, patent litigation is extraordinarily expensive, and even the threat of litigation creates very significant business expenses.[119] However, as mentioned above, the vast majority of patents are never used for this purpose, and patent litigation is in fact a relatively rare event in the patent system. Given the astronomical costs of litigation when it occurs, it is perhaps not surprising that reform tends to focus on those costs, or the costs incurred in anticipation of litigation. But such a focus may allow relatively rare, if monumental, costs to overshadow other systemic costs, as well as the tradeoff between such systemic costs and their associated benefits.

A somewhat different picture may emerge when effects such as codification costs are taken into account. To choose only one example mentioned above, the ongoing costs in large research departments of maintaining codification systems to document conception of an invention can be quite significant. Despite the burden on researchers, most large research and development operations tend to have some invention and disclosure protocols in place in anticipation of future priority disputes. Where smaller, entrepreneurial firms are concerned, the costs of implementing such procedures may be prohibitive; lacking the infrastructure to record and maintain proof of conception, smaller firms may elect simply to risk losing a hypothetical interference that may never occur.

Shifting away from a first-to-invent system eliminates the potential costs of an interference by tying patent ownership to the production of a particular document: the patent application. It has been argued that this favors larger firms with the resources to rapidly produce such documents.[120] But a first-to-file system would also eliminate a significant burden on larger research firms in the form of institutional requirements for recording the process of conception and reduction to practice. At the same time, eliminating such recordkeeping may level the playing field between

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118. *See* Donald MacKenzie & Graham Spinardi, *Tacit Knowledge, Weapons Design, and the Uninvention of Nuclear Weapons*, 101 AM. J. SOCIOLOGY 44, 67-75 (1995).

119. *See* BESSEN & MEURER, *supra* note 116, at 130-33.

120. *See, e.g.*, Patent Harmonization: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. 55 (2006) (prepared statement of Pat Choate, Political Economist and Author of "Hot Property: The Stealing of Ideas in an Age of Globalization"); FTC, A SUMMARY REPORT OF DISCUSSIONS AT TOWN MEETINGS ON PATENT REFORM 8-9 (May 2005), *available at* http://www.ftc.gov/opp/intellect/050601summarytownmtg.pdf; see also Skip Kaltenheuser, Small Business Innovators See Proposed Patent System as Threat, PANDAB, June, 1998, http://www.pandab.org/small-business-innovators.html.

large and small firms by removing an advantage that larger organizations would enjoy in anticipation of interferences.

This perspective suggests that adoption of a first-to-file system, which has been sometimes opposed as a detriment to small firms, might in fact benefit them by taking away the comparative advantage of larger firms in recordkeeping.[121] At the same time, as I have pointed out above, if a first-to-invent system creates an incentive to record knowledge about technological development, effectively reinforcing good laboratory practice, society might lose the corresponding benefits of detailed recordkeeping prompted by the threat of a future interference. Neither of these effects, good or bad, has been discussed in the debate over whether to abandon a first-to-invent system in the United States. This in turn suggests that when effects such as codification are taken into account, the calculus of costs and benefits in patent reform may be more complex than might be assumed under the familiar view that patents provide—or don't provide—incentives to technologically innovate.

VI. CONCLUSION

In recent work I have argued that the social role of patents is not fully captured by economic analysis,[122] even though that has been the prevailing, and almost exclusive, method for legal scholars examining the field. Here I suggest that even within the economic analytical paradigm, there is a good deal that may have been overlooked. Unexpected, unintended, subsidiary, or alternative effects are an important part of the calculus of patent costs and benefits. By considering the patent system as a system of knowledge management and codification, it becomes apparent that patents generate a large range of incentives, not necessarily oriented toward the kinds of technological innovation that have been the focus of patent scholarship.

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121. *Cf.* Mark A. Lemley & Colleen V. Chien, *Are the U.S. Patent Priority Rules Really Necessary?*, 54 HASTINGS L.J. 1299, 1323 (2003) (noting that interferences are most frequently used by large entities to challenge priority of smaller entities).

122. *See* Dan L. Burk, *Feminism and Dualism in Intellectual Property Law*, 14 J. GENDER SOC. POL'Y & L. 183 (2007).

THE NEED FOR SPEED (AND GRACE): ISSUES IN A FIRST-INVENTOR-TO-FILE WORLD

By Margo A. Bagley†

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I. INTRODUCTION

"One is the loneliest number that you'll ever do."[1] This lyric applies to the United States which, since 1998,[2] stands alone among the world's pa-

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† Professor of Law and Class of 1941 Research Professor, University of Virginia School of Law; B.S.Ch.E. 1986 University of Wisconsin-Madison; J.D. 1996, Emory University School of Law. I greatly appreciate the comments and suggestions of Lillian BeVier, Cynthia Ho, Caleb Nelson, Tom Nachbar, Christopher Sprigman, and participants at the Berkeley Center for Law and Technology Symposium on IP and Entrepreneurship and at a University of Virginia School of Law faculty workshop. I would also like to thank Justin Osborn, Kent Olson, and the research librarians of the University of Virginia Law Library for their invaluable research assistance.

1. HARRY NILSSON, *One*, *on* AERIAL BALLET (RCA Victor Europe 1968). The song was popularized by the group Three Dog Night in 1968.

2. In 1998, the Philippines switched from a FTI to a FITF regime. *See* ChanRobles Group, *Intellectual Property Code of the Philippines—An Overview*, http://www.chanrobles.com/legal7code.htm (last visited June 26, 2008); *see also* Rebecca C.E.

tent systems in awarding patents to the first person to invent a claimed invention (first to invent, or "FTI") as opposed to the first inventor to file an application claiming the invention ("FITF"). But its lonely days may soon be over: a provision in pending patent reform legislation will (if passed) move the United States from FTI to FITF and end its solitary stance.

Some argue that the U.S. already has a de facto FITF system, since the first filer usually wins disputes regarding the priority of an invention.[3] Additionally, many U.S. inventors who file for patent protection in other countries with FITF systems have already conformed their practices accordingly. If a de facto FITF regime is already in place, and if many inventors are already adapting their practices to comply with such a system, the U.S. may have little to lose and much to gain from making the switch to FITF.

But then again, maybe not.[4] Much has been written about a U.S. move from FTI to FITF and its potential costs and benefits.[5] However, since this

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McFadyen, *The "First-to-File" Patent System: Why Adoption is NOT an Option!*, 14 RICH J.L. & TECH. 3, 14 (2007).

3. *See* Gerald J. Mossinghoff, The U.S. First-To-Invent System Has Provided No Advantage to Small Entities, 84 J. PAT. & TRADEMARK OFF. SOC'Y 425 (2002).

4. Two-thirds of patent applications filed by U.S. residents are only filed in the U.S., which means only a third are filed in other countries. *See* TRILATERAL COOPERATION, TRILATERAL STATISTICAL REPORT 26 (2006), http://www.trilateral.net/tsr/tsr_2006/tsr_2006.pdf; *see also* Letter from William Jones, CEO, Cummins-Allison Corporation, to Jon P. Santamauro, USPTO (Jun. 22, 2007), http://www.uspto.gov/web/offices/dcom/olia/ harmonization/w_jones.pdf (noting that only 36 percent of U.S. patent applications filed by U.S. inventors are also filed in other countries). WIPO, the World Intellectual Property Organization, reports slightly different statistics: 42% of US origin applications are filed abroad in addition to filing locally (information taken from 2000-2005). WORLD INTELLECTUAL PROP. ORG., WIPO PATENT REPORT 17 (2007), *available at* http://www.wipo.int/export/sites/www/freepublications/en/patents/931/ wipo_pub_931.pdf. This is not surprising since the U.S. has the largest economy in the world providing the largest market for a patent owner. *See* CIA, The World Factbook: United States, https://www.cia.gov/library/publications/the-world-factbook/geos/us.html (last updated July 15, 2008). Moreover, in 2006, 89 percent of USPTO applicants received five or fewer patents, and 62 percent received only one patent. *See* TRILATERAL COOPERATION, *supra* at 40. This suggests that for the majority of U.S. patent applicants, a high level of comfort with a FITF system should not be assumed.

5. *See, e.g.*, Donald W. Banner, *Discordant Aspects of Harmonization*, 85 J. PAT. & TRADEMARK OFF. SOC'Y 172 (2003); Peter A. Jackman, *Adoption of a First-to-File Patent System: A Proposal*, 26 U. BALT. L. REV. 67 (1997); Brad Pedersen & Vadim Braginsky, *The Rush to a First-to-File Patent System in the United States: Is a Globally Standardized Patent Reward System Really Beneficial to Patent Quality and Administrative Efficiency?*, 7 MINN. J. L. SCI. & TECH. 757 (2006); Karen E. Simon, *The Patent Reform Act's Proposed First-to-File Standard: Needed Reform or Constitutional Blunder?* 6 J. MARSHALL REV. INTELL. PROP. L. 129 (2006).

Essay accompanies a symposium on intellectual property and entrepreneurship, it considers how a FITF regime change may impact small-entity inventors, particularly those from academic enterprises.[6] The patent system holds both promise and peril for this group of inventors, and their inventive efforts are becoming increasingly important to this country.[7]

Part II of this Essay surveys certain costs and benefits associated with both FTI and FITF systems, and the impact each may have on small entity inventors. Part III focuses on the one-year grace period for filing patent applications in the U.S. after public disclosure of an invention. This grace period, a device useful to both large and small entities, is especially important to independent and academic inventors but, unfortunately, is unavailable in most other countries. Additionally, Part III discusses why a move to FITF by the U.S. significantly challenges the usefulness of a grace period for small entity inventors. Part IV of the Essay concludes that in light of these challenges, U.S. adoption of FITF should only proceed in conjunction with the adoption of a one-year grace period by the other major patent-granting countries.[8]

II. FTI VS. FITF: CERTAINTY, HARMONY, AND SMALL ENTITIES

Since at least as early as the 1967 *Report of the President's Commission on Patent Reform*, there have been sporadic efforts to pass legislation that would convert the U.S. from an FTI to a FITF regime.[9] A 2003 report

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6. 37 C.F.R. § 1.27 (2007) provides a detailed definition of the small entities that qualify to pay reduced fees for services at the USPTO. Such entities include independent inventors, nonprofit organizations, and small businesses with fewer than 500 employees. *See* 13 C.F.R. § 121.802. Not all inventors are entrepreneurs. Entrepreneurs seek to turn inventions into commercially viable innovations. EconEdLink, U.S. History: Inventors and Entrepreneurs (Dec. 28, 1999), http://www.econedlink.org/lessons/index.cfm?lesson=EM62. However, for purposes of this Essay, small entity inventors will be used as a proxy for small entity entrepreneurs.

7. *See* discussion *infra* at Section II.b.

8. For a fuller explication of some of the concepts relating to grace periods and academic research, see Margo A. Bagley, *Academic Discourse and Proprietary Rights: Putting Patents In Their Proper Place*, 47 B.C. L. REV. 217 (2006).

9. Subcomm. on Patents, Trademarks, & Copyrights of the Senate Comm. on the Judiciary, To Promote The Progress of Useful Arts: Report of the President's Commission on the Patent System, S. 1 Doc. No. 90-5, at 7 (15) (1967). For example, in 1992 alone two bills were introduced for that purpose, neither of which was enacted: Patent Harmonization Act of 1992, S. 2605, 102d Cong. (1992), and H.R. 4978, 102d Cong. (1992). Charles Gholz suggests a much earlier interest in such a move in the 1930s. Charles L. Gholz, *First-to-File or First-To-Invent*, 82 J. Pat. & Trademark Off. Soc'y 891, 892 (2000).

by the National Research Council of the National Academies helped to renew a push for the move by recommending it as a necessary part of a 21st century patent system.[10] A move to FITF is expected to create a "race" to the patent office: as between two true inventors claiming the same invention, the first to file an application is entitled to the patent. Some also expect the move to increase the certainty of patent rights and aid global patent harmonization, all without negatively impacting small entity inventors. But are these benefits hype or reality? And if these benefits are real, at what cost do they come?

A. Eliminating Uncertainty, Creating Harmony

It should be noted that the U.S. does not currently have a pure FTI system. Statutory bars tied to the filing date of a patent application already prevent an applicant from obtaining a patent if, for example, she fails to file an application for the invention within one year of exposing the invention to the public.[11] Consequently, when an invention has been publicly disclosed, there is already a need for speedy filing within the U.S. patent system.

Nevertheless, aside from the statutory bars, patentability before the United States Patent and Trademark Office ("USPTO" or "the Office") is tied to an applicant's invention date, relative to the prior art. If two inventors file applications in the USPTO claiming the same invention, the Office generally will initiate an interference proceeding to determine which applicant is the first inventor and thus entitled to a patent on the claimed invention.[12] Priority interferences are, of course, unique to U.S. patent law, since other countries award patents to the first person to file an application claiming the invention and not to the person first to invent.[13] Interference proceedings are priority contests: if a claimant can prove that she is the first inventor of the disputed subject matter and has not abandoned, suppressed, or concealed the invention, then she is entitled to a patent.[14] Alternatively, interference proceedings can be used to show that, for some

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10. *See* Nat'l Research Council, A Patent System for the 21st Century 126 (Stephen A. Merrill et al. eds., 2004).

11. *See* 35 U.S.C. § 102(b), (d) (2000). Other activities that trigger the one-year clock include selling or offering the claimed invention for sale, or disclosing the claimed invention in a patent or printed publication. *See* § 102(b); *see also* MARTIN J. ADELMAN ET AL., CASES AND MATERIALS ON PATENT LAW 179-80 (2d ed. 2003) (discussing differences between a pure FTI system and the U.S. system's incorporation of statutory bars).

12. 35 U.S.C. § 135 (2000 & Supp. II 2002).

13. Gerald J. Mossinghoff & Vivian Kuo, *World Patent System Circa 20xx A.D.*, 38 IDEA 529, 548 (1998).

14. 35 U.S.C. § 102(g) (2000).

reason other than priority of invention, another party is not entitled to a patent.[15]

Eliminating interferences and the uncertainty associated with them appears to be a prime motivation for the FITF legislation.[16] Interferences tend to be expensive and complex, with burdensome requirements for record keeping.[17] The second applicant in an interference must show that not only was she the first to conceive the invention, but also that she diligently worked to reduce the invention to practice during the relevant time period. These proofs generally take the form of documentary evidence such as dated and witnessed laboratory notebooks. Any gaps of time in reducing the invention to practice must be accounted for or excused. However, interferences are relatively rare: less than 0.1 percent of applications filed result in interferences, which hardly seems to qualify them as a huge drain on the system.[18] Moreover, a FITF system will still have interferences, but they will be known as Derivation Proceedings ("DP").[19] Since a patent is to be awarded only to a true inventor, if, for example, a junior applicant claims that a senior filer derived the invention from her work, that dispute will have to be resolved with a DP.[20] This will require the same types of documentary proofs of invention that interferences re-

15. For example, an applicant can seek to show that an opponent derived the invention from someone else and is thus not a true inventor, or that the subject matter is unpatentable and that no one is entitled to a patent on it. *See* 37 C.F.R. § 41.208 (2007). Interferences are not limited to two parties or to pending applications. As long as at least one pending application is involved and the same subject matter is being claimed, there can be multiple applications or even patents involved in the interference. If only patents are involved in a priority dispute, the dispute is beyond the jurisdiction of the USPTO and must be resolved in federal district court. *See* 35 U.S.C. § 291 (2000).

16. *See, e.g.*, NAT'L RESEARCH COUNCIL, *supra* note 10, at 126 (discussing the costs and complexity of interference proceedings as a reason to move to FITF); Gholz, *supra* note 9, at 891 (describing the drain on inventors involved in establishing priority information for use in interference proceedings).

17. 35 U.S.C. § 102(g)(2) (2000). *See, e.g.*, Sandt Tech., Ltd. v. Resco Metal & Plastics Corp., 264 F.3d 1344, 1350-51 (Fed. Cir. 2001) (discussing importance of documentary corroboration of inventor testimony); Griffith v. Kanamaru, 816 F.2d 624 (Fed. Cir. 1987) (reviewing cases on excuses for inactivity including ill health and daily job demands); Kendall v. Searles, 173 F.2d 986, 993 (C.C.P.A. 1949) (noting diligence requires that applicants must be specific as to dates and facts).

18 . *See* Mossinghoff, *supra* note 3, at 425 (reporting that from 1983 to 2000, the number of two-party decisions in interference cases amounted to less than 0.1 percent of the applications filed).

19. In fact, pending legislation in the House actually renames some of the current interference provisions of US patent law "Derivation Proceedings." *See* Patent Reform Act of 2007, H.R. 1908, 110th Cong. § 135 (2007).

20. *See* § 135(a)(1).

quire.[21] While there may be fewer DPs than interference proceedings, they still will engender the uncertainty associated with interference proceedings, which diminishes the benefit of switching to FITF.

Many aspects of the current patent procurement process involve uncertainty that a move to FITF will not eliminate. For example, because most applications are not published until eighteen months after their filing date, a third party seeing a disclosed invention must wait to discover the existence and scope of patent protection; even then the claims can be changed until the end of prosecution and beyond.[22] In addition, the pending Senate patent reform bill would make oral disclosures, which are ephemeral by definition, qualify as prior art, adding uncertainty to the process of obtaining a patent.[23]

Another argument advanced in favor of a FITF system is the creation of efficiency through harmonization.[24] Patent law is territorial and patentability requirements differ from country to country.[25] Harmonizing these laws is expected to advance the laudable goal of reducing both costs and the complexity of obtaining a patent for inventors.[26] However, a move to FITF will only bring the U.S. into nominal harmony with the rest of the world on the issue of invention versus application priority. As will be discussed below, most FITF countries also provide prior user rights; pending legislation will not.[27] The handling of derivation proceedings and other interference issues that arise in a FITF system will not be harmonized.[28] FITF countries even differ on how to handle two applications claiming the same invention that are filed on the same day. In Japan, for example, the

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21. *See* § 135(j) (2007); *Sandt Tech.*, 264 F.3d at 1350-51.

22. *See, e.g.*, IPR HELPDESK, GRACE PERIOD AND INVENTION LAW IN EUROPE AND SELECTED STATES 5 (2006), http://www.ipr-helpdesk.org/documentos/docsPublicacion /pdf_xml /8_GracePeriodinventionLaw[0000004514_00].pdf; 35 U.S.C. § 251 (2007).

23. *See* Patent Reform Act of 2007, S. 1145, 110th Cong. § 3 (2007). S. 1145 provides: "A patent for a claimed invention may not be obtained if (1) the claimed invention was patented, described in a printed publication, or in public use, on sale, *or otherwise available to the public. . .*" (emphasis added).

24. *See* American Innovation at Risk: The Case for Patent Reform: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 110th Cong. 15 (2007) (statement of Mark B. Myers, Co-Chair, National Academy of Sciences' Report) (discussing the costs of lack of patent harmonization among the U.S., Europe, and Japan); *see also* Pedersen & Braginsky, *supra* note 5, at 764 ("A move to a first-to-file standard is also urged as a step toward the desired goal of global harmonization of patent laws.").

25. *See* Mossinghoff & Kuo, *supra* note 13, at 529.

26. *Id.*

27. *See* discussion *infra* at Section III.a.

28. *See* Gholz, *supra* note 9, at 894.

patent office requires competing applicants to consult among themselves to determine who receives the patent; the patent is awarded to nobody if a determination of ownership is not made.[29] In contrast, the European Patent Office might issue two patents on the same invention where neither is prior art to the other.[30] Moreover, a move to a FITF system will not harmonize a host of other significant differences between U.S. and foreign patent laws.[31] The subject matter eligible for patenting, the definitions of prior art for novelty and nonobviousness determinations, the standard of nonobviousness, the availability of prior user rights, patent enforcement standards, and more all will remain unharmonized if either patent reform bill currently under consideration by Congress were to pass.[32] While the idea of incremental improvements in harmonization is conceptually appealing, FITF is not an ideal candidate for piecemeal adoption without addressing, at a minimum, prior user rights and grace period implementation.

B. FITF and Small Entity Inventors

In an influential 2002 article, former USPTO Commissioner Gerald Mossinghoff attacked one of the primary arguments against a U.S. move to FITF: that it would negatively impact small entities, which seem less likely to win the race to the patent office.[33] Mossinghoff's analysis of USPTO data suggests that virtually the same number of small entities were advantaged[34] by the FTI system as were disadvantaged by it.[35] On the surface, this does appear to suggest small entities have little to lose with a U.S. move to FITF, and this study has been frequently used to sup-

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29. Tokkyo Ho [Patent Law of Japan], Law No. 121 of 1959, amended by Law No. 220 of 1999, art. 39, *translated in* http://www.wipo.int/clea/docs_new/pdf/en/jp/jp036en.pdf.

30. *See* Convention on the Grant of European Patents [European Patent Convention], art. 54, Oct. 5, 1973, 1065 U.N.T.S. 199 [hereinafter E.P.C.], *available at* http://www.epo.org/patents/law/legal-texts/html/epc/2000/e/ma1.html (stating that an application is only prior art to a different application if it is filed before the filing date of the other application).

31. *See* World Intellectual Prop. Org. [WIPO], Standing Comm. on the Law of Patents, *Summary by the Chair*, at 2, 4 WIPO Doc. SCP/12/4 Rev. (Jun. 23, 2008) (listing areas for patent harmonization discussion).

32. *Id.*; *see also* Tokkyo Ho [Patent Law of Japan], art. 28 (defining prior art); E.P.C., art. 54 (defining prior art).

33. *See* Mossinghoff, *supra* note 3, at 425. Of course, some small entities may be nimbler and move faster than large multinationals, in which case FITF could be more favorable to them than FTI.

34. *Id.* The later filing small entity won the interference 203 times, the earlier filing small entity lost the interference 201 times.

35. *See id.*

port such a move.[36] However, a response article by James White highlighted several problems with Mossinghoff's analysis and conclusion.[37] In particular, White notes that Mossinghoff has presented only statistics related to interference decisions, excluding instances where a party withdrew its application or settled with another party before or after the declaration of an interference. Moreover, the study seems to assume an equal value for all interference decisions. Mr. White takes issue with that assumption:

> What if, in any given year, there were 97 $1 million profit invention ownership decisions made by interference decisions and there were 3 $10 billion profit invention ownership decisions made the same way? What if it were shown that for the past 18 years those 3 ownership decisions a year all went to independent inventors while the rest were generally split proportionally between small entities and large entities . . . to me the independent inventor wins of $540 billion in profits would make the comparatively small $1.75 billion of other "winners" seem irrelevant.[38]

White also notes the benefits of the lack of a race to the patent office under FTI that can be particularly important for small entities that need time to decide whether a particular invention merits the costs of filing a patent application and the effort of securing funding for prosecution.[39] Mossinghoff's statistics suggest that only 1 in roughly 37,000 independent inventors per year were disadvantaged in interference proceedings.[40] Thus, an independent inventor's or small entity's risk of being disadvan-

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36. *See, e.g.*, Committee Print Regarding Patent Quality Improvement: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. 6, at 6-7 (2005) (statement of J. Jeffrey Hawley, Legal Division Vice President & Director, Eastman Kodak Company, on behalf of Intellectual Property Owners Association (IPO)) ("Recent studies by former PTO Commissioner Mossinghoff have shown that the benefits of the first to invent system do not justify its costs"); Perspectives on Patents: Hearing Before the Subcomm. on Intellectual Prop. of the S. Comm. on the Judiciary, 109th Cong. (2005) (statement of Michael K. Kirk, Executive Director, American Intellectual Property Law Association), available at http://judiciary.senate.gov/testimony.cfm?id=1475&wit_id=4232 (discussing Mossinghoff study); Perspectives on Patents: Harmonization, and Other Matters: Hearing Before the Subcomm. on Intellectual Prop. of the S. Comm. on the Judiciary, 109th Cong. 3 (2005) (statement of Gerald J. Mossinghoff, Former Comm'r of Patents and Trademarks) (discussing his study).

37. *See generally* James E. White, The U.S. First-To-Invent System, the Mossinghoff Conclusion, and Statistics, 85 J. PAT. & TRADEMARK OFF. SOC'Y 357 (2003).

38. *Id.* at 361-62, 364.

39. *Id.*

40. *Id.* at 364.

taged in an interference may be well worth the advantages of avoiding expensive and frequent races to file patent applications for every promising idea.

Additionally, William Jones, CEO of Cummins-Allison Corp., concluded that the Mossinghoff study actually supported U.S. retention of FTI because it showed such a small number of interference cases each year and that only 17.6% of interferences involved small entities despite the fact that small entities generate 45% of all patent applications.[41] Mr. Jones also inferred that since a virtually equal number of small entities are disadvantaged as advantaged, the USPTO is ably managing the interference process.[42]

Perhaps then the bare numbers regarding interference decisions do not tell the whole story of the benefits and drawbacks of FTI for small entity inventors. A study by Mark Lemley and Colleen Chien provides some support for Mossinghoff's argument that FTI is not helping small entities.[43] It found that individuals or small businesses comprised 18% of parties initiating an interference but 43% of parties responding to an interference. This data suggests that large entities use interferences to challenge the patent validity of small entities more often than the other way around.[44] Nevertheless, Lemley and Chien also concluded that while the U.S. FTI system did not necessarily provide systematic benefits to small entity inventors, it did make a difference:

> Advocates of a first to file system claim that priority disputes waste significant time and money without changing outcomes. These claims are incorrect. Interference proceedings . . . do affect the results in a significant number of cases. Further, while the percentage of patent applications that involve a priority dispute is quite small, it is no smaller—and indeed is somewhat larger—than the percentage of patents that are ever enforced. One cannot say that the small number of priority disputes does not matter any more than one would argue that litigated cases of infringement do not matter to the patent system.[45]

Another important benefit provided by a FTI system is the ability to antedate or "swear behind" a prior art reference using an affidavit under 37 C.F.R 1.131 and showing an earlier date of invention outside of the in-

41. Jones, *supra* note 4, at 2.

42. *Id.*

43. Mark A. Lemley & Colleen V. Chien, *Are the U.S. Patent Priority Rules Really Necessary?*, 54 HASTINGS L.J. 1299 (2003).

44. *Id.* at 1323.

45. *Id.* at 1331.

terference context. Neither the Mossinghoff nor Lemley and Chein studies considered the frequency with which such affidavits are used by inventors to obtain patents. Clearly a FTI system does provide meaningful benefits to small entity inventors in terms of temporal and financial flexibility and the chance to obtain a patent. These benefits seem sufficiently worthwhile to not be lightly discarded for the questionable advances in certainty and harmonization offered by FITF.

Small entity inventors include those in universities and other nonprofit organizations. The patenting activity of university inventors is of particular interest not only because it is increasing but also because it is associated with entrepreneurship. According to the Association of University Technology Managers (AUTM), its members, more than 80% of whom are colleges and universities, received over $45 billion in research support, filed 15,908 U.S. patent applications (compared to 10,687 in 2001), received 3255 patents, and launched 553 start-up companies in 2006 alone.[46] In fact, since 1980, when the Bayh-Dole Act supporting university-industry technology transfer was passed, AUTM members have founded over 5,724 new companies, or more than one company every two days.[47]

The Bayh-Dole Act, which facilitated this entrepreneurial activity by allowing universities to elect to take title to inventions developed with federal funds without having to request permission to do so, is widely considered a success, not just in the U.S., but in other countries as well.[48] Many of these countries are considering, or are in the process of, reforming their laws to emulate Bayh-Dole.[49] The impetus behind Bayh-Dole

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46. ASS'N OF UNIV. TECH. MANAGERS, AUTM LICENSING SURVEY: FY 2006 SURVEY SUMMARY 5 (Dana Bostrom & Robert Tieckelmann eds., 2007) [hereinafter *AUTM FY 2006 SURVEY*], *available at* http://www.autm.org/events/file/AUTM_06_US%20LSS_FNL.pdf.

47. *Id.*

48. Pub. L. No. 96-517, 94 Stat. 3015-28 (codified as amended at 35 U.S.C. §§ 200-211, 301-307 (1994)) (commonly known as the Bayh-Dole Act); *see also* Stevenson-Wydler Technology Innovation Act of 1980, Pub. L. No. 96-480, 94 Stat. 2311-2320 (codified as amended at 15 U.S.C. §§ 3701-3714 (1994)) (extending the benefits of Bayh-Dole to national laboratories).

49. *See, e.g.*, Patent Act of 2005: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. (2005) (statement of Carl E. Gulbrandsen, Managing Director, Wisconsin Alumni Research Foundation (WARF)) (noting that "at WARF, we receive numerous visitors each year from around the world. Invariably our foreign visitors ask about Bayh-Dole and express the wish that their own countries would adopt such forward-thinking legislation"); ASS'N OF UNIV. TECH. MANAGERS, AUTM LICENSING SURVEY: FY 2003 SURVEY SUMMARY (Ashley J. Stevens & Frances Toneguzzo eds., 2004), available at http://www.autm.net/

was the belief that a wealth of basic, useful research developed in universities was languishing in the ivory towers of academia, as it took an average of fifteen to twenty years for basic research disclosed in publications to result in marketed products.[50] The reluctance of private companies to invest in commercializing federally funded research without exclusive rights is a common reason given for the delay.[51] Such reluctance created a "death valley" between publicly funded research and its commercialization by the private sector. The Bayh-Dole Act provided a "bridge" over this valley by allowing universities to elect to take title to inventions developed with federal funds and grant exclusive licenses to entities willing to commercialize such technology.[52]

The Bayh-Dole Act was designed, in part, to facilitate the patenting and licensing of technology developed by university researchers because of the perceived importance of such activity to the U.S. economy.[53] How-

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surveys/dsp.surveyDetail.cfm?pid=16 (citing announcements by the United Kingdom, Canada, Germany, and Japan of investment programs and statutory changes to enhance the commercialization of research from academic institutions as foreign countries "continue to strive to emulate U.S. success in harnessing the intellectual output of its academic institutions").

50. *See generally* David C. Mowery et al., Ivory Tower and Industrial Innovation: University-Industry Technology Before and After the Bayh-Dole Act 9-34 (2004).

51. *Id.* While the funding agency could make the decision to allow licensing, such decisions were rare and were made on a case-by-case basis resulting in significant uncertainty regarding the likelihood of a favorable result. It was well understood, of course, that commercialization was well beyond the mission, resources, and expertise of university researchers and should be handled by the private sector.

52. Bayh-Dole is not without controversy as it raises concerns regarding a corruption of the core mission of universities by overly commercial concerns. However, a discussion of the merits of Bayh-Dole and its role in increasing university patenting activities is beyond the scope of this Essay.

53. The Cooperative Research and Technology Enhancement Act of 2004 ("the CREATE Act"), which facilitates the patenting of inventions created as a result of research collaborations between unrelated entities, has a similar purpose. *See* Cooperative Research and Technology Enhancement (CREATE) Act of 2004, Pub. L. No. 108-453, 118 Stat. 3596 (codified as amended at 35 U.S.C. § 103) (statement of Sen. Orrin Hatch). In his remarks introducing the CREATE Act, Senator Orrin Hatch (R-UT) explicitly related the new legislation to the goals of Bayh-Dole:

> This bill makes a narrow but important change in our patent laws to ensure that the American public will benefit from the results of collaborative research efforts that combine the erudition of great public universities with the entrepreneurial savvy of private enterprises . . . [W]e must encourage—not discourage—public institutions and private entrepreneurs to combine their respective talents in joint research efforts. Indeed Congress committed itself to this principle when it passed the Bayh-Dole Amendments to the Patent Act. The CREATE Act will

ever, the need for additional speed in filing applications engendered by a U.S. move to FITF is expected to create difficulties for many universities for at least two reasons: the nature of university inventions and the costs of patenting.

Because academic researchers have traditionally focused on basic research, as opposed to applied research, inventions generated in universities and disclosed to Technology Transfer Offices ("TTOs") for patent protection are often embryonic and have only speculative commercial value.[54] University TTOs, having limited funds and an increasing number of invention disclosures, must decide which inventions to prosecute with little information on potential commercialization success. For example, in 2006, AUTM members received 18,874 new invention disclosures from researchers but filed only 11,622 new patent applications.[55]

A move to FITF arguably complicates this calculation for university TTO personnel. As the American Association of Universities, the American Council on Education, the Association of American Medical Colleges, and the Council on Governmental Relations explained in a joint statement:

> University inventors typically are faculty members who first publish in academic journals and later consider whether to file to obtain a patent . . . Before filing a patent application, universities often need time to consider the potential commercial application of a basic research discovery, which may not be obvious at the point of discovery, and to assess the receptivity with the commercial sector to licensing any resultant patent for development. *All such practices are accommodated in a first-to-invent system but could be compromised in a first-inventor-to-file system.*[56]

Interestingly, university researchers in Europe have lauded the U.S. FTI regime as beneficial to their U.S. counterparts. According to ProTon Europe, the pan-European network of knowledge transfer offices and

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> simply conform the present language of the Patent Act to the intent that has always animated it.

Id.

54. *See* Jerry G. Thursby et al., *Objectives, Characteristics and Outcomes of University Licensing: A Survey of Major Universities*, 26 J. TECH. TRANSFER 59, 63 (2001) ("Products and processes based on early stage technologies are often years away from commercialization . . . [I]t is difficult to specify royalty income based on sales . . . for very early stage technologies since the nature of the final product is often unknown").

55. AUTM FY 2006 SURVEY, *supra* note 46, at 24-25.

56. Bethany Halford, *First to File*, 15 ASEE PRISM 38 (2005) (emphasis added), *available at* http://www.prism-magazine.org/nov05/feature_first.cfm.

companies affiliated with universities and other public research organizations:

> European universities and other public research organizations still file on average 5 times *less* patent applications than their U.S. counterparts, although the total research budgets are comparable. The lower propensity to patent is attributable to 2 main factors: . . .
>
> [2] The fact that the U.S. patent system is much more favourable to universities than the European system. In addition to lower cost and single language, the U.S. universities are taking advantage of the protection of inventors by the *first-to-invent principle*, a grace period of one year, the continuation-in-part system, provisional applications, 50% reduction in filing and maintenance fees, no maintenance fees before grant, wider patentable inventions, etc. *There is no question that the U.S. universities could not have achieved the reported benefits for the U.S. economy in terms of new products, new companies, and new jobs with the patent system available in Europe.*[57]

In the statement above, ProTon Europe cites the FTI principle as one of several U.S. patent system features beneficial to university researchers. Another cited benefit, a one-year grace period, is arguably just as (if not more) important to this group of inventors. As discussed in the next Part, its adoption outside the U.S. should be intimately tied to any move to FITF within the U.S.

III. THE NEED FOR GRACE

There is no way to know for certain whether adoption of FITF by Congress in 1967 would have improved or hurt the U.S. patent system. According to the American Bar Association Intellectual Property Law section, a FITF system represents a "best practice" approach: superior to FTI, critically necessary, and in the best interest of the U.S.[58] There is little

57. ProTon Europe, ProTon Europe Recommends Improvements to the Patent System in Europe in Order to Facilitate Knowledge Transfer from Public Research 2-3 (2007) (citations omitted, italic emphasis added), http://www.protoneurope.org/Files/PatentPolicyStatement/attachment_download/file.

58. *See, e.g.*, Committee Print Regarding Patent Quality Improvement: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Prop. of the H. Comm. on the Judiciary, 109th Cong. 36, at 42 (2005) (statement of William L. LaFuze, Chair, Section of Intellectual Property Law, American Bar Association) [hereinafter LaFuze, Patent

doubt that removing unnecessary complexity from the U.S. patent system would be a beneficial change, but at what cost? Moreover, what is the best way to implement such a change?[59]

A. Prior User Rights

The sweeping patent reform legislation currently pending in both houses of Congress would bring the most significant changes to U.S. patent law in fifty years.[60] However, the risk of unintended consequences from the confluence of numerous moving parts is substantial, and a failure to get the right mix of FITF-related provisions could prove very problematic. The issue of prior user rights provides a prime example. Most countries that have a FITF system also provide prior user rights.[61] Prior user rights allow a party to continue to use a patented invention after a patent issues, on a royalty-free basis, as long as the party was using the invention, nonpublicly, for some period of time before the patent application was filed.[62] Prior user rights are personal and often nontransferable, but dilute the exclusivity and thus the value that a patent normally provides by allowing someone other than the patent owner to practice the invention.[63]

Quality Improvement] ("[I]t is now apparent that adoption of a first-inventor-to-file principle represents a "best practice" for operating a harmonized patent law").

59. Simplifying interferences and other aspects of the FTI system is also an alternative to wholesale abandonment of the current regime. *See, e.g.*, Lemley & Chien, *supra* note 43, at 1333 (advocating a focus on proof of reduction to practice in interferences); Sean T. Carnathan, *Patent Priority Disputes—A Proposed Redefinition of "First-to-Invent,"* 49 ALA. L. REV. 755 (1998) (advocating a similar approach).

60. *See* The Patent Reform Act of 2008, S. 3600, 110th Cong., at § 2 (2008); The Patent Reform Act of 2007, H.R. 1908, at § 2; S. 1145, 110th Cong., at § 2 (2007); *see also* Posting of Dennis Crouch to Patently-O, Patent Reform Act of 2007, http://www.patentlyo.com/patent/2007/04/patent_reform_a.html (April 18, 2007).

61. *See* Gary L. Griswold et al., Letters to the Editor, *Prior User Rights: Neither a Rose nor a Thorn*, 2 U. BALT. INTELL. PROP. L.J. 233, 235-236 (1994); *see also* Tokkyo Ho [Patent Law of Japan] art. 79 (providing prior user rights); AM. INTELLECTUAL PROP. LAW ASS'N [AIPLA], AIPLA INTERNATIONAL PATENT LAW HANDBOOK – EUROPE, *available at* http://www.aipla.org/html/Patent-Handbook/countries/europe/EUgeneral.html (last visited Jun. 30, 2008) (noting prior user rights vary by country in Europe).

62. *See* Chizai Kanri, *Changes in Company Economic Activity and Prior User Rights*, 56 INTELL. PROP. MGMT. 1007, 1008 (2006), *available at* http://www.jipa.or.jp/content/english/activities/committee/pdf/200607tokkyo2.pdf; *see also* David H. Hollander, Jr., *The First Inventor Defense: A Limited Prior User Right Finds Its Way Into U.S. Patent Law*, 30 AIPLA Q.J. 37, 39 (2002) ("Many of the world's most important patent systems allow a prior user of an invention that is subsequently patented by another to continue to use that invention, subject to certain qualifications and limitations, notwithstanding the patent.").

63. Hollander, *supra* note 62, at 40, 46; *see also* Robert L. Rohrback, *Prior User Rights: Roses or Thorns?*, 2 U. BALT. INTELL. PROP. L.J. 1, 13 (1993) (noting that "the

Prior user rights also risk reducing the incentive to obtain a patent because an inventor can keep her invention secret and continue to practice it after another entity obtains a patent.[64] For these reasons it is unclear whether combining prior user rights with FITF would help or hurt small-entity inventors.

In the U.S. FTI system, there is a default preference for inventors to seek patents and disclose inventions rather than to keep inventions as trade secrets.[65] The only prior user rights currently in U.S. patent law cover business method patents and were introduced in the American Inventor's Protection Act of 1999 due to concerns about this new patent-eligible subject matter.[66] However, in advocating a move to FITF in the Patent Reform Act of 2005, Professor Mark Lemley noted: "The section only works if the bill continues to include the provisions . . . requiring publication of all patent applications and expansion of prior user rights. *If these provisions are not included, Congress should oppose the move to first inventor to file*."[67] The House patent reform bill, H.R. 1908 provides neither of these features and neither Senate bill, S. 1145 or S. 3600, meaningfully expands prior user rights.[68] Another commentator, litigator, and interference practice expert Charles Gholz, is in favor of U.S. adoption of FITF

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adverse consequences of prior user rights which may be visited upon a patentee or applicant far outweigh any possible benefit derived from protecting prior users").

64. *See* Hollander, *supra* note 62, at 42; *see also* Carl Shapiro, *Prior User Rights*, 96 AM. ECON. REV. 92 (2006) ("The main potential drawback associated with prior user rights is that they may encourage inventors to keep their inventions secret rather than disclosing them in patent applications.").

65. *See* Shapiro, *supra* note 64, at 95 ("[T]he current patent system rewards applicants who are most aggressive in seeking patents over those who simply use their own inventions internally as trade secrets.").

66. 35 U.S.C. § 273 (2000). The First Inventor Defense Act is Subtitle C of the American Inventors Protection Act. *See* Consolidated Appropriations Act of 2000, Pub. L. No. 106-113, § 4302, 113 Stat. 1536 (codified at 35 U.S.C. § 273 (2000)), *cited in* Hollander, *supra* note 62, at 39.

67. *Patent Law Reform: Injunctions and Damages*: *Hearing Before the S. Comm. on the Judiciary*, 109th Cong. (2005) (statement of Mark A. Lemley, Professor, Stanford Law School) (emphasis added), *available at* http://judiciary.senate.gov/testimony.cfm?id=1535&wit_id=4352; *see also* Mossinghoff & Kuo, *supra* note 13, at 549 (advocating U.S. adoption of prior user rights along with FITF).

68. *See* Intellectual Prop. Owners Ass'n, Patent Reform (110th Cong.): A comparison of H.R. 1908 as passed by the House and S. 1145 as reported out of the Senate Judiciary Committee, highlighting primary differences 2-3 (2008), http://www.ipo.org/AM/Template.cfm?Section=Legislative_Action_Center&template=/CM/ContentDisplay.cfm&ContentID=15580. Both bills call for a comparative study of prior user rights. *See* H.R. 1908, 110th Cong. § 5 (2007); S. 1145, 110th Cong. § 4 (2007); *see also* The Patent Reform Act of 2008, S. 3600, 110th Cong. § 2 (2008).

in exchange for Europe and Japan improving their handling of FITF-related interference issues.[69] Again, neither the House nor Senate bill contains a provision tying FITF to Europe and Japan's accommodation of these concerns.[70] Consequently, a U.S. move to FITF without prior user rights and without addressing FITF interference issues will not bring true harmonization with other patent systems on these important issues. Moreover, moving to FITF without fully analyzing the pros and cons of whether the U.S. should adopt prior user rights seems premature and ill-advised. These are just two of several reasons for using caution when moving forward with FITF at this time.

B. The Grace Period

Many countries have been pushing the U.S. to switch to FITF for decades and have intimated that they would be willing to provide valuable consideration in exchange by adopting a six-month or one-year grace period.[71] A "grace period" is a length of time in which a patent application can be filed after public exposure of an invention without impairing its novelty for patentability purposes.[72] Inventors must file patent applications in the USPTO within one year of disclosing the invention to the public; otherwise they forfeit the right to patent the invention.[73]

In the U.S., prior art that defeats patentability includes printed publications from anywhere in the world, public knowledge or use of the invention in the U.S. before the applicant's date of invention, or public use or sale in the U.S. more than one year before the patent application filing date.[74] In particular, an academic researcher can lose the right to obtain a potentially lucrative patent on an invention by publicly disclosing her invention (through public presentation, publication, etc.) more than one year before filing a patent application.

The definition of "printed publication" is very broad; courts have interpreted the term to include microfilm, microfiche, internet postings, vi-

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69. Gholz, *supra* note 9, at 894 ("Those issues are (1) derivation, (2) inventorship disputes among former colleagues, (3) interfering cases naming the same inventive entity but filed by different real parties in interest, (4) cases involving interleaving priorities, and (5) improvidently issued junior patents.").

70. *See* H.R. 1908; S. 1145.

71. *See* JOSEPH STRAUS, EUROPEAN PATENT ORGANISATION, EXPERT OPINION ON THE INTRODUCTION OF A GRACE PERIOD IN THE EUROPEAN PATENT LAW 48 (2000), *available at* http://documents.epo.org/projects/babylon/eponet.nsf/0/243CB98A4282E993C125723D0057562E/$File/straus_en.pdf.

72. *See* IPR HELPDESK, *supra* note 22, at 2-3.

73. 35 U.S.C. § 102(b) (2000).

74. *Id.*

deotapes, and most recently slides affixed to poster boards, as long as they are publicly accessible.[75] Thus, if researchers who engage in early public data-sharing do not track and control the timing, nature, and circumstances of disclosure, they may jeopardize their ability to later patent findings.[76]

In countries without a meaningful grace period, an inventor is precluded from patenting her invention if she discloses the invention to the public before filing a patent application.[77] Thus, inventors whose discoveries will require patent protection abroad to fulfill their commercial potential do not enjoy the benefit of the U.S. grace period in other countries. The grace period is an important policy tool that recognizes an inventor's need to assess the commercial potential of an invention or to engage in public academic discourse before deciding to seek patent protection.[78]

Access to a meaningful grace period also can be important to independent inventors who often need to disclose their inventions to the public in order to assess the invention's commercial potential and need time to finance the patent procurement process.[79] Moreover, the one-year grace period provides important flexibility to university researchers, many of whom become entrepreneurs through commercializing research initiated in an academic setting.[80]

C. Disclosure in Academia

University research often progresses in stages; the traditional model of scholarly discourse involves the presentation and publication of research conclusions and insights at these various stages. The unforgiving nature of

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75. *In re* Klopfenstein, 380 F.3d 1345, 1352 (Fed. Cir. 2004).; *see also In re* Hall, 781 F.2d 897, 898 (Fed. Cir. 1986) (holding that public accessibility, not published form, determines what constitutes a "printed publication"); *In re* Wyer, 655 F.2d 221, 226 (C.C.P.A. 1981) (qualifying patent application kept on microfilm as a printed publication); Regents of Univ. of California v. Howmedica, Inc., 530 F. Supp. 846, 860 (D.N.J. 1981) (finding that projected slides can qualify as printed publications); I.C.E. Corp. v. Armco Steel Corp., 250 F. Supp. 738, 743 (S.D.N.Y. 1966) (holding that printed publications can reflect modern day methods so long as they are accessible to the public).

76. *In re* Klopfenstein, 380 F.3d at 1352; *In re* Hall, 781 F.2d at 898; *In re* Wyer, 655 F.2d at 226; *Howmedica*, 530 F. Supp. at 860; I.C.E., 250 F. Supp. at 743.

77. E.P.C., art. 54.

78. *See* Baxter Int'l, Inc. v. COBE Labs., Inc., 88 F.3d 1054, 1058 (Fed. Cir. 1996) (noting that policies underlying § 102(b) include "allowing the inventor a reasonable amount of time following sales activity to determine the potential economic value of a patent").

79. *See generally Statement in Favor of the Grace Period*: *Hearing of the European Comm'n on the Grace Period* (1998) [hereinafter "Moussa"] (statement of Farag Moussa, President, International Federation of Inventor's Associations (IFIA)), *available at* http://www.invention-ifia.ch/byFaragMoussa_GracePeriod.htm.

80. *See* discussion *supra* at Section II.b, note 46.

patent novelty rules conflicts with this norm of disclosure and encourages a culture in which researchers delay the dissemination of even very embryonic research, sometimes no more than a proof of concept, while the university TTO prepares a provisional patent application.[81] Seemingly, secrecy is on the rise among academic researchers (particularly in the life sciences) with some university scientists choosing to limit or delay disclosures of their work in order to obtain patents.[82] For example, in 1966, fifty percent of surveyed experimental biologists felt safe in sharing information on current research with others; only twenty-six percent felt that way by 1998.[83] In a separate study of geneticists, thirty-five percent perceived academic scientists as somewhat or much less willing to share information and data than a decade ago, fifty-eight percent reported adverse effects of data withholding on their own research, and fifty-six percent reported adverse effects of data withholding on the education of students and postdoctoral researchers.[84]

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81. Provisional applications offer applicants a lower filing fee and an additional twelve months beyond the grace period in which to determine whether to file a regular nonprovisional application for a patent. Provisional applications also protect an applicant's right to file in other countries as long as the provisional is filed before the invention is disclosed to the public. Also, the provisional application is not examined by the USPTO, will simply lapse after twelve months, and will have no further effect unless a regular nonprovisional application is filed in time. Provisional applications are attractive to TTOs precisely because of the embryonic nature of most university inventions. *See* 35 U.S.C. §§ 111(b), 119(e) (2000 & Supp. II 2002). The filing fee for a provisional application is $105 as compared to $515 for a nonprovisional (regular) utility application. *See Fiscal Year 2007 Revised Fee Schedule*, 71 Fed. Reg. 32285 (proposed June 5, 2006) (to be codified at 37 C.F.R. pt. 1 & 41). The $515 includes filing, search, and examination fees, all of which are required for nonprovisional applications. Of course, most of the expense associated with filing a patent application derives from the cost for an attorney to draft the application for filing (in the new schedule, a provisional application is $210; a regular filing is $310; and the search fee is $510).

82. *See, e.g.*, Jeremy M. Grushcow, *Measuring Secrecy: A Cost of the Patent System Revealed*, 33 J. LEGAL STUD. 59, 82 (2004) (presenting data on the increased secretiveness of university researchers between 1980 and 1990); John P. Walsh & Wei Hong, Correspondence, *Secrecy is Increasing in Step with Competition*, 422 NATURE 801, 802 (2003). Of course, there are other reasons for increasing secrecy among researchers such as scientific competition. Nevertheless, the increasing prevalence of proprietary incentives cannot be ignored.

83. Walsh & Hong, *supra* note 82, at 802.

84. Eric G. Campbell et al., *Data Withholding in Academic Genetics*, 287, J. AM. MED. ASS'N 473, 478 (2002). This is not to suggest that increasing secrecy is solely, or even predominantly, the result of the patent novelty rules. There are a variety of contributing factors, such as the widespread inclusion of secrecy clauses in industry sponsorship agreements, and the increasingly competitive nature of academic research in general.

In addition, an analysis of the presentation, publication, and patenting patterns of university scientists in 1980 and 1990 revealed a troubling trend: an increase in the number of scientists withholding presentation of their data in order to seek patents.[85] The analysis considered the difference in the "publication gap," the delay between a scientist's presentation of data at a scientific conference and formal publication of that data in a peer-reviewed journal, as well as the increase in meeting abstracts associated with patents. In 1980, 4.5 percent of meeting abstracts examined were associated with a patent; by 1990, the corresponding number was 19.2 percent.[86] Moreover, eighty-eight percent of patents associated with meeting abstracts were filed before the conference presentation. The author of the study observed that:

> Consistent with the incentive to withhold data when seeking patents, the lag between abstract presentation at the meeting and the formal publication in a peer-reviewed journal was shorter for university and NIH scientists[87] who sought patents than for their peers who did not seek patents. University scientists who sought patents presented meeting abstracts only on work that was complete, on average publishing in the same year as the meeting abstract, whereas university scientists who were not seeking patents published on average 1.21 years after their data were presented as a meeting abstract.[88]

The author concludes the data indicates that "scientists who seek patents are more secretive, withholding publication or presentation of their data so as not to jeopardize patentability."[89]

Nevertheless, the potential of the patent novelty rules to encourage this kind of behavior cannot be ignored.

85. Grushcow, *supra* note 82, at 60.

86. *Id.* at 73.

87. The Stevenson-Wydler Act applied the Bayh-Dole Act provisions to researchers in government labs, such as the NIH. Consequently, such researchers also have increased incentives to patent and commercialize their work. *See* Stevenson-Wydler Act of 1980, Pub. L. No. 96-480, 94 Stat. 2311-2320 (codified as amended at 15 U.S.C. §§ 3701-3714 (1994)).

88. Grushcow, *supra* note 82, at 74 (data omitted). However, ninety percent of meeting abstracts were followed up with a formal publication. This indicates that even though university researchers may withhold early data, they still seek the benefits ultimately associated with publication.

89. *Id.* at 82. The author also noted that over time, secrecy increased among non-patent-seeking university researchers as well, suggesting an overall deterioration in academic sharing norms after Bayh-Dole. It is important to note that not all of these results are due to patents. Difficulties in obtaining research materials requested in material transfer agreements (MTAs) is perhaps an even larger problem for researchers and is likely

Preliminary results from a new study by Chiara Franzosi and Giuseppe Scellato further suggest a link between the lack of a robust grace period and delayed publication.[90] The authors analyzed a database of 1047 patents applied for in 2000 that were assigned to an academic institution; 371 were matched to a scientific paper to determine the patent-publication lag.[91] The results indicate that a patent system with a grace period reduces the amount of time between publication and patenting.[92] For applications originally filed in the U.S. and then later filed in the EPO (which has no meaningful grace period), the time lag between patent application filing and article publication increased by six to seven months.[93] The authors note that for patents with global commercial potential, the lack of a grace period in many markets may nullify its effect even in countries with a grace period. However, because the data is preliminary, it is unclear whether factors other than a grace period may be responsible for the results.[94]

Given the realities of academic research and TTO practices, even a one-year grace period is often not long enough to accommodate the needs of many researchers.[95] It is not uncommon for more than a single year to pass before academic research progresses to the point where a TTO can effectively assess the research's commercial potential.[96] As noted earlier, university inventions tend to be embryonic when they are first disclosed to TTO personnel who generally have limited resources and sparse data to determine which inventions to patent.[97] Nevertheless, a grace period of even one year provides needed time for both academic publication activity and TTO commercialization assessment to take place.[98]

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influenced more by competitive pressure and the burden of complying with the request than patent concerns. *See* John P. Walsh et al., *View from the Bench: Patents and Material Transfers*, 309 SCI. 2002, 2003 (2005).

90. Chiara Franzoni & Giuseppe Scellato, *Estimating the Determinants of Patent-Publication Lags in Europe and USA*, PROCEEDINGS OF THE ACADEMY OF INNOVATION AND ENTREPRENEURSHIP CONFERENCE (2008) (copy on file with the author).

91. *Id.*

92. *Id.* at 21.

93. *Id.*

94. For example, the results may have been affected by the difference in patent subject matter eligibility between the U.S. and the European Union. Moreover, there may be different publication cultures in various fields in the U.S. and the European Union because of different subject matter rules.

95. *See* Bagley, *supra* note 8, at 264.

96. *Id.*

97. *See* Thursby et al., *supra* note 54, at 63.

98. A proposal for addressing this issue made by the author elsewhere would involve injecting more flexibility into the patent system by creating an opt-in extended

D. The Grace Period in Europe

For several years there has been a vigorous debate over the introduction of a meaningful grace period in Europe.[99] The European Patent Convention (EPC) operates on an absolute-novelty basis, with limited (and virtually meaningless) exceptions for certain types of disclosures occurring within six months of the application filing date.[100] This stands in stark contrast to the one-year grace period within the U.S.[101] Many European countries had grace period provisions before joining the EPC, and at least two still retain varying types of grace periods in national law.[102] In a detailed opinion favoring adoption of a general grace period in Europe, Professor Dr. Joseph Straus noted the growing significance of academic and research institutes as diffusers of innovative knowledge and as patent applicants.[103] He also highlighted the need for early publication of academic research results; a need that is not met by publishing simultaneously with

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grace period, which would provide more time for academic researchers to publish and present early stage research before having to file a patent application. Such an extension, coupled with early application publication (i.e. publication of designated applications immediately after filing, instead of after an eighteen-month delay), would allow researchers to engage in traditional academic discourse while retaining the ability to obtain proprietary rights necessary for commercialization of their inventions. Importantly, it would also provide early disclosure of discoveries for other scientists to build upon. However, it would have the negative effect of putting the U.S. further out of step with other countries who have not even adopted a twelve-month grace period. *See* Bagley, *supra* note 8, at 256-66.

99. *See, e.g.*, IPR HELPDESK, *supra* note 22, at 2-3; Moussa, *supra* note 79, at 45.

100. The six-month grace period is only available where the invention was disclosed as a result of an evident abuse or was disclosed at an international exhibition, like a World's Fair. E.P.C., art. 54.

101. *See* 35 U.S.C. § 102(b). For example, the European Patent Convention only provides a narrow six-month grace period for disclosures resulting from an "evident abuse" or display in a qualified international exhibition. *See* E.P.C. art. 54(2). Moreover, the grace period dates from the filing of the actual European patent application, not a priority application, effectively eliminating the benefit of the grace period for foreign applicants who choose to take advantage of the Paris Convention right of priority after filing a first application in their home country. *See* Case G03/98, University Patents, Inc. v. Smith-Kline Beecham Biologicals SA, 2000 E.P.O.R. 33 (EPO Enlarged Bd. App. 2000). The Japanese Patent Act also provides a six-month grace period that covers the same items as the EPC provision as well as disclosures made by the patent applicant. *See* Tokkyo Ho [Patent Law of Japan] art. 30.

102. *See* IPR HELPDESK, *supra* note 22, at 2-3 (describing grace periods in Portugal, Spain, Russia, China, Canada, Japan, and other countries). Grace periods in Spain and Portugal are a derogation from the EPC and thus do not apply to European patents issued for those countries, but inventors seeking only national patents may benefit from them. *Id.*

103. Straus, *supra* note 71, at 61.

or after filing a patent application due to the disclosure norms of academia and the often embryonic nature of the invention.[104]

Information supplied by the European Commission IPR Helpdesk shows an awareness of the dangers to university researchers who contribute to scientific discourse through presentations and publications before seeking patent protection. It cites this problem as a main reason why inventions generated at European universities are rarely patented even though they are valuable and capable of being commercialized.[105]

ProTon Europe, in its Patent Policy statement, urges the European Commission to adopt a grace period for Europe. Its explanation of the problem is insightful:

> [M]ost inventions are based to some extent on discoveries made by public research institutions. In Europe, if such discoveries are made public before filing a patent application, then the practical applications of these discoveries can no longer be protected by a patent, . . . Few university patents can resist this test.
>
> In the USA, this is not so. The inventors have up to one year from the time of discovery to figure out all possible applications, and even speak with potential licensees, before filing a well constructed patent application. The public disclosures made during this period cannot be opposed to the patent application filed by the inventors or their assignees. This is referred to as a "grace" period of one year . . . . [U]niversities are expected to publish their discoveries as soon as possible and to share them with their fellow scientists in the "Open Science" paradigm. Rapid public disclosure of discoveries is not avoidable, nor should it be avoided. The problem is that those applications that cannot be protected by patents as a result of such disclosure may never be developed for lack of protection of the required investments.[106]

Despite such statements from academics and proposals by EU member states in WIPO Substantive Patent Law Treaty negotiations, the European Commission and European Patent Organization have shown little interest in adopting a grace period due to significant resistance from industry.[107] Mr. Jan Galama of Philips International, author of a position paper arguing against the adoption of a grace period in Europe, expressed the view of many in industry: "[I]f scientists, universities, etc. wished to become play-

104. *Id.*
105. IPR HELPDESK, *supra* note 22, at 1-2.
106. PROTON EUROPE, *supra* note 57, at 5-6.
107. *See id.*; *see also* IPR HELPDESK, *supra* note 22, at 2-3.

ers in the economic world they would have to disregard some old habits."[108]

E. The FTI Bargaining Chip

With the increasing European and Asian interest in technology transfer, the U.S.'s retention of FTI could serve as a bargaining chip that creates the necessary incentives for the adoption of a one-year grace period by other countries. Such a move would benefit entrepreneurs and researchers both in the U.S. and abroad and aid in the global diffusion of knowledge through both publication and patenting.

So why "give away" FTI for free when we can use it to seek a grace period that will benefit not only small entities in the U.S. but also those in other countries and thus contribute to the prompt dissemination of global knowledge?[109] Moreover, a grace period's potential benefit would not be limited to small entities. Japan has a six-month grace period that must be explicitly invoked when filing a patent application. According to one commentator:

> In this connection, the delegation of Japan indicated that only about 0.2% of all patent applications filed in Japan invoked the provisions of the Japanese law concerning the grace period; The [sic] percentage was somewhat higher in respect of applications which were published after substantive examination. Among those applications, *about half were filed by large Japanese corporations*, one third by the Japanese Government and national research institutes, 10% by Japanese individual inventors and small-sized corporations, and less than 5% by foreign applicants. As regards the reasons for which the grace period was invoked, about three quarters of all cases concerned disclosure to a scientific meeting and almost one quarter printed publications; Unlawful disclosure was invoked only in about 1% of all cases, and

108. Jan E.M. Galama, European Patent Organisation, Expert Opinion on the Case for and Against the Introduction of a Grace Period in Europe 23 (2002), *available at* http://www.european-patent-office.org/news/pressrel/pdf/galama.pdf; *see also* Commission of the European Communities, An Assessment of the Implications for Basic Genetic Engineering Research of Failure to Publish, or Late Publication of, Papers on Subjects Which Could be Patentable as Required under Article 16(b) of Directive 98/44/EC on the Legal Protection of Biotechnological Inventions (2002), *available at* http://eur-lex.europa.eu/LexUriServ/Lex UriServ.do?uri=COM:2002:0002:FIN:EN:PDF.

109. For a view that FTI should not be used as a bargaining chip in international patent treaty negotiations, see LaFuze, *Patent Quality Improvement*, *supra* note 58, at 3 (positing that because a move to FITF is in our best interest, "our possible willingness to abandon our current system no longer serves as a potential negotiating chip in international patent harmonization discussions").

> disclosure at an exhibition was not invoked in any of the cases.[110]

Thus large corporations may also benefit from the flexibility a grace period offers. While the two patent reform bills introduced in Congress in 2007 both contain provisions to switch the U.S. from FTI to FITF, the House bill, H.R. 1908, contains an interesting caveat for adoption of FITF not found in the Senate version. Under the section on effective dates, H.R.1908 states:

> The amendments made by this section . . . shall take effect 90 days after the date on which the President issues an Executive order containing the President's finding that major patenting authorities have adopted a grace period having substantially the same effect as that contained under the amendments made by this section[.][111]

The Act further defines "Major Patenting Authorities" to include "at least the patenting authorities in Europe and Japan."[112] In other words, the section of the Act moving the U.S. from FTI to FITF would not take effect until at least the European Patent Convention and the Japanese Patent Act are amended to provide for a one-year grace period.[113] This seems like a creative way to ensure the quid pro quo of a grace period that the U.S. has long sought in exchange for the adoption of FITF. But what does a grace period look like in a FITF world?

F. FITF and the Grace Period: An Awkward Fit

As discussed above, a one-year grace period is beneficial and important for small entity inventors, including academic researchers. The current U.S. grace period embodied in 35 U.S.C. § 102(b) insulates an inventor against personal or third party patents, printed publications, or geographically specific public uses or sales of the claimed invention that take place up to one-year before she files her patent application.[114] In combina-

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110. Straus, *supra* note 71, at ¶ 12 (emphasis added).

111. H.R. 1908,110th Cong. § 146 (k)(1)(a) (2007).

112. *Id*. That list should include China and Korea. According to the WIPO, the five offices that received the most patent applications in 2007 were Japan, the U.S., China, Korea, and the European Patent Office, in that order. WORLD INTELLECTUAL PROP. ORG., WIPO PATENT REPORT 12 (2007), *available at* http://www.wipo.int/export/sites/www/freepublications/en/patents/931/wipo_pub_931.pdf.

113. *See* H.R. 1908, at § 146 (k)(1)(a); WIPO PATENT REPORT, *supra* note 112, at 12.

114. § 102(b) states that 'A person shall be entitled to a patent unless . . . the invention was patented or described in a printed publication in this or a foreign country, or in

tion with FTI, this means that a U.S. inventor can safely sell products she has invented or publish a paper on the invention up to a year before filing an application without losing the right to a patent.[115] If, for example, a competitor sees the inventor's disclosure during this period and develops an obvious variation of it (or comes up with it independently) and files a patent application before the first inventor, the first inventor still would be able to obtain her patent through an interference and prevent a patent from issuing to the first filer.

Conversely, the grace period provided in pending FITF patent reform legislation only provides protection against disclosures made by or derived from the applicant and does not impact priority.[116] So what happens if an inventor publishes an article disclosing her invention during the grace period, and a second independent inventor files an application first on the same invention? The wording of the proposed legislation suggests a similar result to that which would be obtained in, for example, Korea: the first inventor would not be entitled to a patent because she was not the first inventor to file.[117] But the second inventor also would not be entitled to the patent because the first inventor's publication would be novelty-precluding prior art to her since the proposed grace period does not protect against third party disclosures.[118] This illustrates just one issue that pending FITF legislation does not clearly address. The situation is further complicated by the issue of prior user rights and creates a question of whether (and in what form) pending legislation should include them.[119]

The H.R. 1908 approach of tying a switch to FITF to Japan and Europe's adoption of a one-year grace period is a good start. An even better approach would be to remove FITF from pending legislation until international negotiations are complete and a treaty is signed that addresses priority and the grace period in a comprehensive, harmonized manner.[120] In

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public use or on sale in this country, more than one year prior to the date of the application for patent in the United States." 35 U.S.C. § 102(b) (2000).

115. *Id.*

116. *See* The Patent Reform Act of 2008, S. 3600, 110th Cong., at § 2 (2008); The Patent Reform Act of 2007, H.R. 1908, at § 2; S. 1145, 110th Cong., at § 2 (2007).

117. *See* Man-Gi Paik & Jae-Choon You, *Korea: What Korea's Patent Reforms Mean for You*, MANAGING INTELLECTUAL PROP. (SUPPLEMENT—ASIA-PACIFIC IP FOCUS 2006), Oct. 2006, *available at* http://www.managingip.com/Article.aspx?ArticleID=1321299.

118. *Id.*

119. *See* discussion *supra* at Section III.a.

120. The WIPO Standing Committee on the Law of Patents recently reconvened and began renewed efforts toward negotiation of a substantive patent law treaty that would likely include FITF and grace period provisions, as they have been part of this body's previous discussions. *See* WORLD INTELLECTUAL PROP. ORG., *supra* note 31; *see also*

addition, a move to FITF should be delayed until domestic consensus is reached on the necessary complements to FITF, such as the scope of prior user rights, the breadth of the grace period, and the impact of the grace period on priority.

IV. CONCLUSIONS

The U.S. FTI system may be unique in the world but it offers significant benefits to small entity entrepreneurs and others. Through a robust grace period, it allows time for commercialization assessments, revenue generation, and academic discourse. It also obviates the need for a prior user rights system with its potential to dilute the value of exclusive patent rights. Yet, as evidenced by pending legislation, there is considerable pressure for the U.S. to discard FTI for FITF.

A U.S. move to FITF is unlikely to signal the end of the world for small entity inventors, but it does not seem to offer enough benefits, as currently proposed, to justify its potential harms. Nevertheless, if the U.S. is to move to a FITF patent regime, when should it do so? Only when such a move will provide a clear advantage for small entities by facilitating the adoption of a one-year grace period outside of the U.S.

As discussed above, a move by the United States to a FITF system will likely have negative ramifications for small entity inventors. Delaying a move to FITF until it can be used to facilitate the adoption of a one-year grace period in other countries will allow the United States to make the bitter pill of the race to the patent office considerably easier for many researchers and entrepreneurs to swallow by providing them with something very useful in return. The adage "haste makes waste" surely applies here:

World Intellectual Prop. Org, Substantive Patent Law Harmonization, http://www.wipo.int/patent-law/en/harmonization.htm (last visited July 1, 2008). As USPTO Director Jon Dudas explains:

> It should be noted that U.S. conversion to first-to-file is an overriding consideration in ongoing substantive patent law harmonization discussions with foreign patent offices. . . . In this regard, we believe that any U.S. commitment to convert to first-to-file should be contingent on significant progress and international agreement in those harmonization discussions. In particular, the United States seeks a standardized one-year international grace period to protect American inventors who might disclose their invention prior to filing for a patent.

Patent Reform: The Future of American Innovation: *Hearings Before the S. Comm. on the Judiciary*, 110th Cong. 3 (2007) (statement of Jon W. Dudas, Under Secretary of Commerce for Intellectual Property & Director of USPTO), *available at* http://judiciary.senate.gov/testimony.cfm?id=2803&wit_id=6506.

a hasty move to FITF may waste our best hope for obtaining from other countries the grace period that is so critical for small entity innovation, academic discourse, and prompt dissemination of information.

WHY DO START-UPS PATENT?

By Stuart J.H. Graham[†] *and Ted Sichelman*[††]

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† Ewing Marion Kauffman Foundation Fellow in Social Science and the Law, University of California, Berkeley, School of Law (Boalt Hall); Assistant Professor of Strategic Management, College of Management, Georgia Institute of Technology.

I. INTRODUCTION: THE PUZZLE OF PATENTS

The standard theory explaining why inventors or their employers file for patents assumes that patentees generate greater-than-average returns on the patented products they sell by preventing others from making, using, and selling those products.[2] According to this theory, society benefits because these supernormal returns compensate for a market defect—namely, that the copying and selling of innovative products by competitors can often be achieved cheaply and easily, which can suboptimally stymie innovation. Introducing patents and attendant liability for infringement makes this copying by others costly. The patent system thereby promotes a more optimal level of innovation by providing incentives to inventors to invent, market, and sell innovative products, and to disclose the knowledge underlying those innovations in the form of published patent documents.

The reality is, however, much more complicated. In fact, there are at least ten other bases commonly used to explain why patentees file for patents, and there has been no consensus on which of them are the primary drivers of patenting. First, some patentees don't sell any products. Viewed in a favorable light, these nonpracticing entity ("NPE") patentees solve a market failure by providing technology to other entities in a better position to use it. In such an ideal world, NPE patentees license their patents and related know-how to non-innovators who possess the manufacturing capacity or market channels to manufacture and sell a patented product or to use a patented process to realize efficiencies. Of course, the world of patent law (like other worlds of law) is not so ideal, and some NPE patentees use their patents as a proverbial club, effectively taxing those companies who were clever enough to have invented the product or process but not

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†† Ewing Marion Kauffman Foundation Fellow in Law and Public Policy, University of California, Berkeley, School of Law (Boalt Hall).

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2. More specifically, patents can also cover methods, processes, and services. *See* 35 U.S.C. § 101 (2000). The reference to "products" in the text is illustrative.

quick enough to have patented it.[3] The NPE patentee can use the patent to stage a hold up, forcing royalty payments from those using the patented technology. Some scholars and much of the media call these types of patentees—rightly or wrongly, depending on one's take—"patent trolls."[4]

Second, many companies acquire patents for what they claim are merely "defensive" reasons. Far from using patents offensively to stop others from making or selling their products, these companies view patents as necessary evils that shield others from suing them for patent infringement.[5] If a plaintiff sells products, an accused infringer can file a counterclaim accusing the plaintiff of infringing any of its patents that plausibly encompass those products. Any such game of "mutually assured destruction" raises the likelihood of a timely settlement or, if the defendant is known for countersuing, a settlement prior to the suit being filed. In reality, most companies do not exclusively use patents defensively; it is but one of many motivations to acquire patents.[6]

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3. Furthermore, a patent covering any component of a product typically leads to damages that are calculated from sales of the *entire product* and often leads to an injunction that prevents the manufacture and sale of the *entire product*. *See, e.g.*, State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580 (Fed. Cir. 1989); TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 900-01 (Fed. Cir. 1986); Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307, 354-62 (2005) (describing the current use of the "entire market value" rule).

4. *See, e.g.*, Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2009 (2007) (arguing that awarding "patent trolls" injunctive remedies distorts the economic purpose of the patent system); John M. Golden, Commentary, *"Patent Trolls" and Patent Remedies*, 85 TEX. L. REV. 2111 (2007) (criticizing Lemley and Shapiro's theoretical model, empirical data, and policy recommendations); Mark A. Lemley & Carl Shapiro, Reply, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 2163 (2007) (critiquing Golden's response); Steven Levy, *Changes in Patents May Be Pending*, NEWSWEEK, March 12, 2007, at 19; Joe Nocera, *Tired of Trolls, A Feisty Chief Fights Back*, N.Y. TIMES, Sep. 16, 2006, at C1; Tracey Steiner & Stephen Guth, *Beware Patent Trolls*, MGMT. Q., Sep. 22, 2005, at 38.

5. According to a general counsel of a major software publishing company:

> Software companies tend to be either offensive or defensive in their use of patents, generally not both. . . . [Patents] are not a particularly valuable asset for our company—they've been nothing but trouble. . . . [But] that's not to say that patents are useless: We are now, all of us [the software companies], accumulating patents for defensive purposes.

Interview with anonymous general counsel of a major packaged-software firm, one of the top performers in the industry by revenue from 1995 to present, in Cal. (Nov. 20, 2004).

6. In fact, none of the reasons for patenting we provide herein are mutually exclusive, and more than one will typically play a role in an inventor's or company's decision to file. For instance, Microsoft patents for a number of different offensive and defensive

Third, some patentees, often large companies, acquire patents as bargaining chips in cross-licensing negotiations with their competitors. For instance, the major players in the hard disk drive industry, after some initial skirmishes, found a mechanism to avoid suing one another for patent infringement: they cross-licensed each other's entire patent portfolio, thereby allowing each to practice any of the other companies' patents.[7] When cross-licensing agreements come up for renewal, companies will commonly count the number of patents they hold, and demand royalty payments from other companies that have fewer patents.[8] The upshot is that the companies with the most patents demand a tax from the others.[9] Accordingly, there are strong incentives for companies to engage in a sort of patent arms race, with companies continuously filing for patents to ensure that they are not forced to pay for their cross-licenses. Moreover, firms that allow their patent numbers to shrink relative to their competitors may actually be kicked out of the cross-licensing cohort, and thereby become subject to the threat of patent infringement actions in court with their attendant costs.[10] Perhaps it is not a coincidence that of the twenty companies with the highest number of patents issued in 2007, many are part of vast cross-licensing networks that span multiple technology fields.[11]

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reasons. *See infra* note 11; Andrew Orlowski, *Microsoft Aiming IBM-Scale Patent Program at Linux?*, REGISTER, Dec. 8, 2003, http://www.theregister.co.uk/2003/12/08/microsoft_aiming_ibmscale_patent_program.

7. *See* Samsung, Hitachi Sign License Deal on Hard Drives, REUTERS, Dec. 21, 2007, http://www.reuters.com/article/technologyNews/idUSSEO20627720071221; Quantum Corporation and Fujitsu Limited Complete Patent Cross-License Agreement, BUS. WIRE, Oct. 13, 1999; Seagate and Read-Rite Forge Patent Cross-Licensing Agreement, BUS. WIRE, Apr. 18, 1995 (describing Seagate's strategy of cross-licensing patent portfolios with Read-Rite, IBM, Quantum, Western Digital, Maxtor, NEC, Hitachi, Toshiba and others); *Seagate/Toshiba Cross-License, Criticize Patent Fights*, NEWSBYTES, Apr. 20, 1994; Hard Disk Drive Leaders Announce Broad Patent Cross-Licensing Agreement, BUS. WIRE, July 13, 1992.

8. In this regard, the value of individual patents arguably increases when part of a large portfolio. *See* Gideon Parchomovsky & R. Polk Wagner, *Patent Portfolios*, 154 U. PA. L. REV. 1, 31-43 (2005).

9. *See id.* at 30-31; Lemley & Shapiro, *supra* note 4; Rajiv P. Patel, Patent Portfolio Strategy for Start-Up Companies: A Primer, PAT. STRATEGY & MGMT., Nov. 2002, at 1.

10. Based on the experience of one of the authors, usually these sorts of cross-licensing breakdowns are short-term strategic moves, often coupled with litigation, by dominant players in the cohort to extract greater monetary or other benefits from a less powerful competitor.

11. *See* Press Release, IFI Patent Intelligence, IFI Patent Intelligence Announces 2007's Top U.S. Patent Assignees (Jan. 14, 2008), *available at* http://www.ificlaims.com/IFI%20Patent%20Release%201-9-08.htm (listing the top 50 patenters). Cross-

Fourth, some patentees do not consider patents useful for increasing revenues or avoiding costs but do believe that having them improves their chances of securing investment.[12] One explanation is that there are "information asymmetries"; in particular, either the patentee or the investor knows something the other does not. One species of this argument is that one of the parties is mistaken: either the investor mistakenly believes that patents are useful to the patentee's business or the patentee doesn't realize that patents are in fact useful to its business. The reality may be a bit muddier—the investor could merely overestimate, and the patentee merely underestimate, the value of patents to the business. Another related possibility is that investors use patents as a signal or proxy for hard-to-measure capabilities and assets in the company. For instance, investors might view a company's securing fifty nanotechnology patents as a mark of its mastery of cutting-edge technology.[13]

The fifth reason is similar to the fourth: some patentees file for patents simply to improve their chances of being acquired, take their company public in an initial public offering (IPO), or just to increase the value of their assets in bankruptcy.[14] Like the patentees who acquire patents to secure investment, although these patentees may know *what* is good for them, they don't always know *why*.

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licensing Deals: Google Search, http://www.google.com/search?source=ig&hl=en&rlz=&=&q=cross-licensing+deals&btnG=Google+Search (current through March 29, 2008); *see also* Ina Fried, *Microsoft—License to Deal*, CNET NEWS.COM, Nov. 8, 2004, http://www.news.com/Microsoft--license-to-deal/2100-1012_3-5440881.html (first hit in Google search reporting that David Kaefer, Microsoft's director of intellectual property licensing, believed that if Microsoft was "able to strike cross-licensing deals with the top 30 technology companies, that alone would provide us access to a vast majority of the patents in areas we care about" and noting that Microsoft had boosted its filing to rate to "3,000 applications" in 2004). A print-out of the Google search results is available from the authors.

12. *See, e.g.*, Ronald J. Mann & Thomas W. Sager, *Patents, Venture Capital, and Software Start-ups* (U. of Tex. Sch. of L., UT L. & Econ. Research Paper No. 057, 2006), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=802806 (finding a significant correlation between patenting activity and total financing as well as the number of rounds of financing but acknowledging that they could not determine whether increased patenting caused increased financing).

13. *See generally* Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625 (2002).

14. For instance, an unpublished study of Rosemary Ziedonis and others finds that increased patenting by target companies is significantly correlated with higher amounts paid by acquirers. *See* Joyce E. Cutler, *Patent Filing: Is it a Predictor of Survival?*, Patent, Trademark & Copyright Law Daily (BNA), No. 48 (Mar. 12, 2008); *see also* Gregory L. Alexander, *Don't Overlook Patent Damages*, 16-6 AM. BANKR. INST. J. 26 (1997) ("One of the most valuable claims a bankruptcy estate may have is the right to enforce a patent.").

Sixth, some companies use patents to bully their competitors in order to drive up their costs, to gain access to their technology, or to push them out of the market. One might argue that this sort of behavior falls under the rubric of boosting profits by preventing others from practicing the patent. In an ideal world, where all issued patents are valid and enforceable, and infringement is clearly identifiable, it would be easier to make such a case. But patent litigation is uncertain, costly, and takes a long time to resolve. Thus, patentees with weak patents are able to exploit the patent system by suing, or even by simply threatening to sue, their competitors. Because the costs and risks of defending a patent suit can be high, even if the accused infringer believes it will likely win the infringement suit, the patentee is typically able to force a nuisance-value settlement.[15] Thus, like the nonpracticing entities out to generate licensing revenue by using their patents as a club, these "patent bullies" use their patents to beat their competitors into submission or sometimes into oblivion.[16]

Seventh, some patentees acquire patents on their inventions to preempt competitors from acquiring patents on the same inventions and later turning around and suing them. This preemptive strategy is possible because patents trump trade secrets. Suppose, for instance, that a would-be patentee Secret Co. invents a new manufacturing process but decides to keep it as a trade secret. Six months later, Public Co. independently invents the same manufacturing process and files for a patent, which is granted two years later. Public Co. later discovers Secret Co.'s use of the process by reverse engineering its products.[17] Other than a few exceptions that fall under the "prior use" exemption to patent infringement,[18] Public Co. can then sue Secret Co. for patent infringement—even though Secret Co. actually invented the manufacturing process first. One can imagine that the next time Secret Co. invents a new process (or product) that it could keep

15. *See* S. COMM. ON THE JUDICIARY, REVIEW OF THE AMERICAN PATENT SYSTEM, S. REP. NO. 84-1464, at 5 (1956) ("[Patents] have a high nuisance value in the hands of large corporate owners, since they can wreak financial havoc upon smaller competitors by infringements suits, even though the ultimate judgment is in favor of the infringer."); Kimberly A. Moore, *Populism and Patents*, 82 N.Y.U. L. REV. 69, 90-91 (2007) ("[L]arge corporations may file nuisance suits against smaller defendants because smaller defendants cannot afford to litigate and thus are likely to settle quickly, regardless of the merits.").

16. *See* Ted Sichelman, Patent Bullies: How Industry Incumbents Abuse the Patent System (Jul. 22, 2008) (unpublished manuscript, copy on file with authors).

17. *See, e.g.*, Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 475-76 (1974) (noting that reverse engineering is a legitimate means of discovering a trade secret).

18. *See* 35 U.S.C. § 273(b) (2000) (limiting the "prior use" exemption to business methods reduced to practice at least one year before the effective filing date of the patent and commercially used before the effective filing date of the patent).

as a trade secret, it will weigh in the balance whether it might be sued for patent infringement on its own invention. If the risks are great enough, it may decide that suffering the costs of filing for a patent to preempt others from patenting its invention is in its interests.

Eighth, in a strategy almost the reverse of preempting others from patenting one's own invention, a company can focus its inventive efforts on patenting essential or improved components of *patented* products sold by others.[19] This "blocking patents" phenomenon occurs because patent law provides no right to practice one's patent, only a right to exclude others from practicing the patent.[20] Suppose that a patentee, Chip Co., invents a new and nonobvious type of microchip processor that shows a significant increase in performance over the best processor currently in the market. Chip Co. applies for a patent on the processor and it issues. However, suppose another patentee, Comm Co., holds a patent on the communications protocol necessary for microchips to communicate with the rest of the PC infrastructure. If Chip Co. wants to manufacture a PC with its microprocessor inside, it will need to secure a license from Comm Co. This is so even if Chip Co. patents a microprocessor with the communications protocol, which in some cases it might be able to do. Thus, Comm Co. can block Chip Co. from practicing its own patented invention and may later gain significant financial benefits by licensing its patents to Chip Co.[21]

Ninth, in studies probing the realm of human psychology and market "signaling," evidence suggests that attaching a "patented" or "patent-pending" moniker to commercials and marketing literature for products like exercise equipment or knife sets boosts sales. Apparently, even when the patent has not yet issued (e.g., a "unique patent-pending design"), consumers attach meaning or importance to the "patent" label.[22]

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19. Of course, a company can do the same for unpatented products, but the ability to do so for patented products illustrates an important difference between patent and traditional property rights. *See, e.g.*, John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 456 (2004) ("The absence of . . . blocking rights . . . is generally consistent with the common law of real property, which loathes creating bilateral-monopoly problems.").

20. *See* 35 U.S.C. § 271(a)-(c) (2000).

21. *See generally* Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75 (1994).

22. *See, e.g.*, Pops-A-Dent: Professional Quality Dent Remover, http://www.asseenontv.com/prod-pages/pops-a-dent.html (last visited Mar. 29, 2008) ("Unique patent-pending arched bridge design eliminates the chance for additional damage. Other systems without this design are known to actually add dents to the surface.").

And, tenth, some inventors just want a patent so they can frame it and put it on the wall.[23]

Yet, despite being able to list, describe, and explain all of these motivations for patenting, scholars are not quite sure which ones are the primary drivers. Nor has anyone comprehensively defined which differing characteristics of inventors, companies, technologies, and industries may make some of these explanations meaningful in some circumstances, but not in others. This lack of satisfactory understanding becomes even more pronounced when coupled with the host of reasons why inventors and companies decide *not* to patent innovations, including not wanting to disclose the innovation, the high costs of prosecuting or enforcing patents, the ease of designing around potential patents, viewing copyright or trade secrets as adequate protection, or simply being too busy to file.[24]

In short, why individuals and firms patent remains mostly a mystery. Although a few scholars have attempted to answer these questions with empirical surveys and informal interviews, none of these studies has been systematic enough to provide conclusive answers. Of course, performing a comprehensive survey across multiple industries and patentees of all sizes and ages would be a monumental undertaking. Nonetheless, it is possible to chip away at the mountains of data looming in the patent system's landscape.

This year, with funding from the Ewing Marion Kauffman Foundation, the Berkeley Center for Law & Technology at the University of California, Berkeley, School of Law, is undertaking the first comprehensive survey of patents and entrepreneurship in the United States ("the Survey"). The authors, along with other investigators,[25] are administering the survey to approximately 12,000 start-up and early-stage companies in the biotech, software, and "cleantech" industries. A section of the survey asks why entrepreneurs, start-ups, and early-stage companies do (and do not) patent. We expect that the resulting data will yield significant insights, allowing us to begin to solve this important puzzle in intellectual property.

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23. *See, e.g.*, Patent Awards, http://www.patentawards.com/ (last visited June 25, 2008) (selling "premium" customized "Patent Plaques"). But perhaps this is the best reason, for "What profit hath a man of all his labor which he taketh under the sun?" other than "Vanity." *Ecclesiastes* 1:2-4 ("Vanity of vanities, saith the Preacher, vanity of vanities; all is vanity. What profit hath a man of all his labour which he taketh under the sun? One generation passeth away, and another generation cometh . . . .").

24. *See infra* Section II.B.

25. These investigators include Professors Robert Merges and Pamela Samuelson, UC Berkeley School of Law, and Berkeley Center for Law & Technology Executive Director Robert Barr.

This Article lays the groundwork for our inquiry into why start-ups patent, examining the theory, common observations, and existing data on the topic. We begin with a review of the dominant theories used to explain patenting, including the decision to forgo patenting, focusing on how those theories apply to start-up companies. In so doing, we catalogue common observations and anecdotes, and examine the existing empirical data on the topic, generally finding it inconclusive. Last, we describe the 2008 Berkeley Patent Survey, including a discussion of the portion designed to answer the question "Why do start-ups patent?"

II. THE DECISION TO PATENT: MANY THEORIES BUT INCONCLUSIVE DATA

In this part of the Article, we review in more detail the dominant theories of why inventors decide (or not) to file for patents, and discuss the available empirical evidence supporting and rejecting those theories. In so doing, we pay particular attention to how these theories and data apply to entrepreneurs, start-ups, and early-stage companies. Although some robust data is available for publicly traded companies and some scattered data exists for entrepreneurial companies, we find that the empirical studies are generally inconclusive.

A. Why Patent?

1. Maintaining Supra-Competitive Prices

As we described in Part I, likely the most common explanation for why patentees file is to protect their ability to maintain supra-competitive prices on their products and services.[26] This explanation is wrapped up in the theory of intellectual property—that without strong incentives (here, supernormal profits), innovators will not innovate.[27] When a patentee invents a new product it plans to sell, it risks that others may copy or independently invent the product, which can diminish and even eliminate the patentee's profit.[28] A rational patentee will first assess the magnitude of this risk, including its likelihood. If the overall risk is small to nil, then the

26. *See generally* William M. Landes & Richard A. Posner, The Economic Structure of Intellectual Property Law 298 (2002); W.D. Nordhaus, Invention, Growth, and Welfare: A Theoretical Treatment of Technological Change (1969); JOHN W. SCHLICHER, Patent Law: Legal and Economic Principles § 2.15 (2007).

27. Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, *reprinted in* THE RATE AND DIRECTION OF INVENTIVE ACTIVITIES: ECONOMIC AND SOCIAL FACTORS 609 (Richard R. Nelson ed., 1962).

28. *See generally* LANDES & POSNER, *supra* note 26, at 294.

patentee can forgo additional protection.[29] If the risk is not insignificant, the patentee will then weigh its options to reduce the risk. It might consider nonlegal options, such as increased marketing expenditures to promote the new product. Alternatively, or in addition, it can opt for legal protection, such as trademark, copyright, trade secret, or patent protection.[30]

Of all these options, only two are exclusive—either a patentee can keep the invention as a trade secret or it must disclose it either during the application process or, at the very least, when the patent issues.[31] If the invention is easy to copy or reverse engineer, and the invention is accessible to competitors,[32] then a patentee will not benefit from trade secret protection.[33] Since filing for a patent usually costs about $20,000 including attorney's fees,[34] in this instance, companies with sufficient resources are likely to file for a patent.

Interestingly, even if it is difficult to copy or reverse engineer the product, trade secret protection may not be optimal. Although trade secret protection never expires and is relatively inexpensive,[35] as described in Part I, a company that maintains a trade secret risks that competitors will independently invent, enabling them to sell the same product or use the same process. In a well-functioning market, competition will tend to erode supernormal profits. Additionally, for most inventions, the competitor may actually patent the invention—and if it is able to determine that the company maintaining the trade secret is practicing it—can then sue the origi-

29. On the other hand, the patentee may wish to publish its results to prevent others from patenting the invention and forcing the patentee to pay royalties on its own invention. *See infra* Section II.A.7 (discussing patenting for "preemption").

30. *See, e.g.*, H. JACKSON KNIGHT, PATENT STRATEGY FOR RESEARCHERS AND RESEARCH MANAGERS 36-38 (2001) (providing advice to company managers on the use of patents, copyrights, trademarks, and trade secrets to protect innovations).

31. *See generally* LANDES & POSNER, *supra* note 26, at 294-95. As we note below, however, in some instances a patentee may keep portions of its invention secret. *See infra* notes 112-113 and accompanying text.

32. An internal manufacturing process, for instance, might be easy to copy, but may not have to see the light of day, and thus be protected from prying eyes.

33. Importantly, trade secret protection does not prevent a third-party from copying or reverse engineering a product that it has legally obtained. Uniform Trade Secrets Act §§ 1-3 (1985).

34. *See, e.g.*, Kimberly A. Moore, *Xenophobia in American Courts*, 97 NW. U. L. REV. 1497, 1544-55 (2003).

35. In this regard, the requirement of making "reasonable" efforts to maintain the secret is not usually stringent. *See* JAMES POOLEY, TRADE SECRETS § 4.04[2][b] (2008).

nal inventor for patent infringement. Thus, trade secrets are often fraught with significant risk.[36]

Patents, on the other hand, provide a strict liability claim against any third-party that makes, uses, or sells the patented product—regardless of whether the third party independently invented the product.[37] As such, despite their limited term, patents are often viewed by companies as an optimal form of legal protection to maintain the supra-competitive pricing of a new product. Society justifies these high prices—and their associated "dead-weight" losses in the form of reduced public consumption of the product—in the belief that in the absence of patent protection, companies would expend too little on R & D and product commercialization, because the ease of copying by others would diminish an appropriate return on investment.[38]

Compared with large companies, start-up and early-stage technology companies arguably face a different payoff decision when deciding whether to file a patent to maintain supra-competitive prices. First, unlike mature companies, these companies will often not have revenues to protect, which can make the value of filing for a patent seem remote.[39] Second, because start-up companies generally are focused on research and development—often in highly productive "brainstorming" modes—they may invent numerous products in a short period of time, only some of which will be marketable.[40] Third, these companies will frequently have

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36. *See, e.g.*, MICHAEL J. LENNON, DRAFTING TECHNOLOGY PATENT LICENSE AGREEMENTS § 1.06[A] (2001), at 1-38 to 1-40 (describing the disadvantages of trade secrets relative to patents for proprietary information technology); POOLEY, *supra* note 35, § 3.01[5][c]-[d] (2008) (describing advantages of patent protection).

37. There is, however, a narrow "prior use" defense for business methods. *See supra* note 18.

38. Whether this belief is justified is the subject of a separate debate in the field, well beyond the scope of this Article. *See, e.g.*, FTC, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY (2003), *available at* http://www.ftc.gov/os/2003/10/innovationrpt.pdf (last visited Apr. 16, 2008); ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2004); NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., A PATENT SYSTEM FOR THE 21ST CENTURY (Stephen A. Merrill et al. eds., 2004).

39. *See* Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 985 (2005) ("Because [small] firms do not yet have a product, they have no opportunity for revenues. Thus, the benefits they reap from excluding competitors are minimal at best.").

40. *See, e.g.*, Raymond Van Dyke, *Biotech Growth in 2003: The Catalysts For Success*, WASH. BUS. J., Mar. 3, 2003, *available at* http://www.washington.bizjournals.com/washington/stories/2003/03/31/focus6.html ("[V]ery few [pharmaceutical] products show

very limited IP budgets and related resources, allowing them to file but a small number of patent applications.[41]

As such, start-up companies may face more constrained decisions on whether to use patent versus trade secret protection, if the latter is available at all. Currently, the patent system eases this burden to some degree by using the date of conception of the invention, as opposed to the date of patent filing, as the priority date for determining whether the patent is valid in view of so-called "prior art."[42] This approach allows the patentee—especially when coupled with the ability to file a scaled-down provisional patent application a year before having to file a full utility application—to delay by a few years its decision whether to patent.[43] Nonetheless, for very young companies with small budgets, even a few years leeway may not solve the difficulty in choosing appropriate protection. If a patentee forgoes patenting, it may see a decrease in the profits it can realize from its innovations. The lower profits may in turn reduce the company's rate of innovation. The extent to which start-up and early-stage companies—as well as society—are harmed by the costs of patenting is in great need of empirical study.

2. *Generating Licensing Revenues*

As we noted in Part I, another important reason for innovators to patent is to generate revenue in the form of licenses or damage awards in patent litigation. First, even a company that practices its patents may find that it cannot fulfill all the demand for its patented products. For instance, it may not have the know-how or skill to sell its products in foreign markets. Or, it may be prevented by another's patent from combining its patented product with other features that consumers demand. In these situations, a practicing patentee will often license its patents for use in other geographic or product markets to extract value it otherwise could not. Second, and perhaps more common, a patentee will not have the re-

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promise of being marketable and even fewer make it through the years-long approval process of the U.S. Food and Drug Administration.").

41. *See* Mann, *supra* note 39, at 982-84 (describing how start-up firms must allocate money between products and patents and often choose less effective forms of patent protection including provisional applications in order to save money for product development).

42. *See* 35 U.S.C. § 102 (2000).

43. On the other hand, an inventor has a strong incentive to use "reasonable diligence" in reducing the invention to practice (essentially, building a prototype) after conception, as not doing so may result in a forfeiture of rights. *See id.* § 102(g). Additionally, delaying filing may prevent the start-up from disclosing or using its invention publicly, since doing so starts a one-year clock ticking to file a patent. *See id.* § 102(b).

sources, know-how, or desire to practice its patents.[44] In this regard, unlike some foreign regimes, the U.S. patent system has no "working" requirement—like a piece of farmland, the owner may work it himself, lease it out to a tenant, or allow it to lay fallow.[45]

The threat of damages and, often, injunctive relief, is a proverbial club that patentees can use to extract license fees from alleged infringers. Also, because the costs of litigation are substantial[46] and the uncertainty is great,[47] alleged infringers often will pay for licenses even when they believe that they do not infringe a patent. Of course, these distortions in suit and settlement will increase license fees even when some fees are deserving.

Thus, there is a significant incentive for companies to seek a patent in order to generate license fees from third-parties that practice it. One example of a typical licensor is a company that sells products, but does not sell across all available product and geographic markets.[48] For instance, IBM generates a significant portion ($41 billion) of its total yearly revenue ($88 billion) from the sale of hardware and software, but generates about $1 billion from merely licensing its patents.[49] With so much licensing rev-

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44. There is a third form of licensing as well—cross-licensing—which we discuss in the next section. *See infra* Section II.A.3.

45. *Compare, e.g.*, The Patents Act, No. 39 of 1970; India Code (1999) § 83(a) (setting forth a working requirement under Indian patent law) *with* Dawson Chem. Co. v. Rohm & Haas Co., 448 U.S. 176, 215 (1980) (rejecting the argument that the failure to license would result in a loss of statutory rights and noting that such a position "runs contrary to the long-settled view [under U.S. law] that the essence of a patent grant is the right to exclude others from profiting by the patented invention").

46. Litigating a patent case through trial costs on the order of $3-5 million. *See* AM. INTELLECTUAL PROP. LAW ASS'N, REPORT OF THE ECONOMIC SURVEY 25–26 (2007).

47. Arguably, uncertainty is especially high with lay juries deciding complex technological questions of fact. *See, e.g.*, Paul R. Michel, *Improving Patent Jury Trials*, *in* PLI'S FOURTH ANNUAL INSTITUTE FOR INTELLECTUAL PROPERTY LAW 1998, at 81 (PLI Patents, Copyrights, Trademarks & Literary Prop. Course Handbook Series No. 532, 1998) ("The very unpredictability of jury verdicts not only undermines opinion letters, but discourages license agreements and design-arounds, and multiplies litigation—with attendant costs in money, disruption and delay.").

48. *See* Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CALIF. L. REV. 805, 869-71 (1988) (noting that firms commonly license to peripheral competitors, new firms, and foreign companies rather than to direct competitors).

49. *See* KEVIN G. RIVETTE & DAVID KLINE, REMBRANDTS IN THE ATTIC: UNLOCKING THE HIDDEN VALUE OF PATENTS 58 (2000) (noting IBM's rise in patent licensing revenues from $30 million to $1 billion annually); Parchomovsky & Wagner, *supra* note 8, at 8 (pegging the value at $1.5 billion annually); Bill Seubert, IBM Software Group, ThinkBIG! A peek at the zSeries/z9 platform (June 6, 2006), *available at* http://www.cs.

enue, perhaps it is not surprising that IBM has been issued the greatest number of U.S. patents annually since 1993.[50]

Another category of licensor is the so-called "patent troll," which roughly is a company that sells no products and performs no R & D, instead generating its revenue through licensing or damages earned in infringement suits.[51] In essence, these licensors are "patent holding companies"—a landlord of sorts that buys patents and leases them out to companies that practice them.[52] In addition to buying patents, some so-called "trolls" hire engineers to sit in conference rooms and brainstorm patent applications.[53] Over the past five years or so, these entities have significantly increased their licensing and litigation activity, in what many observers believe is an abusive fashion.[54]

3. *Developing an Arsenal for Cross-Licensing*

On the other hand, patentees that have a well-stocked arsenal of patents to assert against would-be licensors are often in a strong bargaining position. The genesis of Microsoft's march to becoming a top patenter is telling. As one practitioner recounts:

> [I]n 1993 Microsoft only held 24 patents and was struggling with IBM over software licensing. When the two companies could not come to terms, IBM wielded a portfolio of over 1,000 patents as a strong-arm tactic to get Microsoft to the table. Analysts said

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ipfw.edu/advisory/meetings/mtg12/IBM%20CS%20PAB%20Jun06.ppt (slide show presentation).

50. Press Release, IBM, IBM Sets Record for Most U.S. Patents Earned in One Year, Jan. 11, 2007, *available at* http://www-03.ibm.com/press/us/en/pressrelease/20868.wss.

51. *See e.g.*, Robert P. Merges, *Introductory Note to Brief of Amicus Curiae in* eBay v. MercExchange, 21 BERKELEY TECH. L.J. 997, 997 (2006) (noting "non-producing, non-research and development performing patent holders" are often referred to as "patent trolls").

52. Charles Tait Graves, *The Law of Negative Knowledge: A Critique*, 15 TEX. INTELL. PROP. L.J. 387, 405 (2007); *see also* Peter Lattman, *Innovative Invention Company Or Giant Patent Troll?*, WALL ST. J., (Law Blog), Nov. 12, 2007, http://blogs.wsj.com/law/2007/11/12/innovative-invention-company-or-giant-patent-troll/.

53. Intellectual Ventures, Frequently Asked Questions, http://www.intellectualventures.com/faq.aspx (last visited April 15, 2008) ("How do you come up with your invention ideas? IV's invention efforts center on 'invention sessions' which are multidisciplinary brainstorming events focused on a particular set of issues and possible solutions. IV typically hosts several 1-2 day invention sessions per month."); *see also* Malcolm Gladwell, *In the Air: Who Says Big Ideas are Rare?*, NEW YORKER, May 12, 2008, at 50 (recounting in detail one of Intellectual Ventures's invention sessions).

54. *See, e.g.*, *supra* note 4.

> Microsoft eventually had to ante up an estimated $20–30 million in patent licensing fees. In the wake of this, Bill Gates told financial analysts "Our goal is to have enough patents to be able to take and exchange intellectual property with other companies." As of October 2000, Microsoft held 1,391 patents.[55]

As of April 2008, Microsoft held 8,499 patents,[56] and has inked numerous cross-license deals[57]—apparently achieving Bill Gates's goal "to take and exchange intellectual property with other companies."

Yet, Microsoft's weak stance vis-à-vis IBM in 1993 is probably indicative of most start-up companies' positions in cross-licensing negotiations. Because a start-up typically does not have the funds to build an arsenal of patents like some large incumbents, it will be at a relative disadvantage in cross-licensing deals. Thus, if a patentee spots a start-up using its patented technology and desires a license to the start-up's patents—except in the very unlikely event that the start-up has a significant portfolio to cross-license—the start-up would presumably provide a payment (either up-front, as an on-going royalty, or both) to the patentee as part of the cross-licensing agreement. Gaining access to the start-up company's innovative technology as part of the cross-licensing deal will add to the already strong incentives for an incumbent to build its patent arsenal and thereby keep cross-licensing costs with fellow incumbent competitors down.[58]

4. Securing Investment and Financing

Maintaining supra-competitive prices, one-way licensing, and cross-licensing all generate revenue or reduce costs. Of course, another way to increase cash flow is to raise capital through financing or borrowing, and patents can play an important role here as well. First, some scholars have demonstrated that intensive patenting by acquisition targets produces upward adjustments in purchase prices.[59] Additional research suggests that

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55. *See* Anthony L. Miele, Patent Strategy: The Managers Guide to Profiting from Patent Portfolios 40 (2000) (recounting the 1993 IBM-Microsoft licensing negotiations).

56. This number resulted from a search for "Microsoft" as assignee on the U.S. Patent & Trademark Office's website. *See* Patent Full-Text and Image Database, http://www.uspto.gov/patft/index.html (last visited April 7, 2008).

57. Cross-licensing Deals: Google Search, http://www.google.com/search?source=ig&hl=en&rlz=&=&q=cross-licensing+deals&btnG=Google+Search (current through March 29, 2008).

58. As we described in Part I, most of the companies that are the top patent holders in the United States are large incumbents that are highly active in cross-licensing deals. *See supra* note 11.

59. *See* David Hsu & Rosemarie Ziedonis, Patents as Quality Signals for Entrepreneurial Ventures (Apr. 2007) (unpublished manuscript, on file with Mack Ctr. for Tech-

similar effects push up initial public offering (IPO) share prices.[60] Second, other scholars have found that increased patenting by venture-backed companies in the software and biotech industries is significantly correlated with total investment, total number of financing rounds, and firm longevity, though it is unclear whether increased patenting caused, or is merely correlated with, these results.[61] Third, patents often serve as valuable hard assets, either in securing loans or by increasing a company's value upon liquidation.

One reason why patents may be valuable to securing investment and financing is that they are indicators of a company's ability to maintain supernormal profits or to reduce licensing costs. Yet, some company managers, and many in software start-ups, maintain that patents provide no specific value for their company other than merely an "optical" one for investors and other financing entities.[62] On this account, although patents may have no intrinsic value for the company that owns them, they can still have an extrinsic value to outsiders estimating the company's assets or worth.

There are several explanations for this seeming paradox. Probably the most likely one is that investors, banks, lawyers, and other outsiders performing due diligence on companies have only a limited amount of time and resources to perform a valuation of assets or overall worth. Because patents can increase profitability for many companies, the outsiders incorrectly attribute some value to otherwise worthless patents held by the company. Alternatively, even if the patents cannot increase a company's profitability, they may signal to outsiders that the company is engaging in the sorts of practices that successful companies generally conduct or may serve as a proxy for internal firm resources that are otherwise difficult to quantify. For instance, the fact that a company has the wherewithal to file for patents might signal to investors that it has the "discipline and technical expertise" to "codify [otherwise] tacit knowledge," which could be viewed as a safeguard against a "brain drain" of the company's valuable know-how if key engineers were to leave.[63] It could also be the case that

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nological Innovation working paper series), *available at* http://elsa.berkeley.edu/~bhhall/e222spring07_files/HsuZiedonis07_PatentSignaling_abstables.pdf (finding that a doubling in the patent stock of venture-backed semiconductor companies leads to a 24% premium in market valuation).

60. Iain M. Cockburn & Megan J. MacGarvie, *Patents, Thickets, and the Financing of Early-Stage Firms: Evidence from the Software Industry* (Nat'l Bureau of Econ. Res., Working Paper No. W13644, 2007), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1037168.

61. *See* Mann & Sager, *supra* note 12.

62. *See* Mann, *supra* note 39, at 995 n.172.

63. *See id.* at 992; *see also* Long, *supra* note 13.

managers may simply be wrong in their assessments, not realizing the value of patents that investors can objectively determine. In any event, given that the costs of eliminating information asymmetry between investors and a company are typically high, even companies for which patents are "valueless" to profitability will still retain an incentive to file.[64]

Another possibility is that patents, even if not valuable in the hands of the current owner, might be extremely valuable in the hands of a different owner. This implicates the notion that a patent may offer residual value to investors, even if the start-up fails in its current business model. If a patent can be sold to others who are well-positioned to demand royalties or file infringement suits, it may have value quite apart from its utility to the business model of the start-up venture. So, while the patent may offer little in terms of the company's strategy for earning revenue, it may nevertheless be a valuable asset on the balance sheet in the eyes of investors and lenders.

5. *"The Best Defense is a Good Offense": Patents as Shields*

It is a cliché of war, boxing, and football strategists that "the best defense is a good offense."[65] Suffice it to say, this cliché is—at least in one of the authors' experience as a litigator—bandied about almost as much in the patent arena.[66] An alleged infringer that can assert a patent as a counterclaim against a plaintiff enjoys multiple benefits. This is so even if the counter-claimant's patent is not as strong as the plaintiff's. First, the plaintiff will typically become subject to the threat of an injunction on its infringing products.[67] If the revenue stream of the plaintiff's potentially infringing products is significantly greater than the revenue stream of the defendant's, this differential in at-risk assets may compensate for the plaintiff's threat value, even for a weak patent. Second, the counterclaim will tend to neutralize the plaintiff's attack. For instance, legal arguments that the plaintiff might make to further its case (e.g., on the proper standard of obviousness) will typically also improve the defendant's counterclaim case. And, the defendant will be able to use in its defensive case any legal argument the plaintiff makes in its defensive case. Third, counterclaiming imposes significant additional costs on the plaintiff. Taken to-

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64. *See* Long, *supra* note 13, at 644.

65. *See, e.g.*, Anthony H. Cordesman, *The Best Defense Is a Good Offense*, N.Y. TIMES, Dec. 27, 2004, at A17.

66. *See, e.g.*, Posting of Rand Bateman to IP Thoughts, The Best Defense Is A Good Offense—Even In Patents, Jan. 29, 2008, http://ipthoughts.com/2008/01/29/the-best-defense-is-a-good-offense--even-in-patents.aspx.

67. DONALD S. CHISUM, CHISUM ON PATENTS § 20.04 (2008).

gether, such a "defensive" strategy of affirmatively using patents can substantially decrease the defendant's risks and costs of litigation, leading to a more favorable outcome. Because of these benefits, patentees may file for patents to generate such a "defensive shield."

6. *Patent Bullying*

Of course, in some instances, arch competitors will engage in two-way patent battles. A good example is the ongoing spat between the two wireless technology companies, Broadcom and Qualcomm.[68] When the asserted patents are strong, and the parties are battling to maintain supracompetitive prices, it seems plausible that the patent system is effectively fulfilling its role in providing appropriate *ex post* incentives to spur *ex ante* invention. However, when the patents are weak—that is, when it is very likely the defendant would be able to show on summary judgment, at trial, or by the final appeal that it does not infringe or that the asserted patents are invalid or unenforceable—the patent system may not function optimally because of the high costs and uncertainty of patent litigation.

Thus, even knowing that their patents may be weak, large companies can often exploit them in strategic fashion to prevent competition from upstarts. The story of Vonage is illustrative. Vonage, an early-stage company founded in 2000,[69] was one of the first providers to offer telephone services over the Internet through traditional telephones.[70] After its initial marketing blitz, Vonage had two million subscriber lines by 2006, many of which had been switched from the incumbent local and long-distance carriers, such as Verizon, AT&T, and Sprint.[71] The incumbent carriers responded by suing Vonage for patent infringement in three separate cases.[72] Despite a widespread belief among industry observers that the carriers' patents were invalid or not infringed,[73] Vonage ultimately settled all

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68. *See, e.g.*, Jonathan Sidener, *Qualcomm Says Competitors Conspiring in Patent Dispute*, SAN DIEGO UNION-TRIBUNE, Mar. 21, 2008, at C1.

69. *See* Yahoo! Finance, Profile for Vonage Holdings Corporation, http://finance.yahoo.com/q/pr?s=VG (last visited Aug. 15, 2008).

70. Lev Grossman, *On the Internet, Talk Is Cheap*, TIME, Apr. 15, 2002, at 77.

71. *See* Chris Williams, *Vonage: Patent Smackdown Won't Bring Shutters Down*, REGISTER, Feb. 26, 2007, http://www.theregister.co.uk/2007/02/26/vonage_defends_against_verizon. One of the authors performed legal work for Vonage in the AT&T case. All of the information provided on Vonage herein is publicly available.

72. *See id.*

73. *See, e.g.*, Mike Masnick, *AT&T Joins The Party Of Jealous Telcos: Sues Vonage For Patent Infringement*, TECH DIRT, Oct. 22, 2007, http://techdirt.com/articles/20071019/184443.shtml.

three cases for around $200 million,[74] about a quarter of its annual revenue.[75] Since settling the lawsuits, Vonage's marketing expenditures have decreased and its subscriber growth has slowed, though the company has "staved off bankruptcy for the time being."[76]

7. "Blocking" and "Preemptive" Patenting

To avoid fates like Vonage's, companies that otherwise see little benefit to patenting may nevertheless file for a patent merely to preempt a competitor from patenting the company's invention at a later time. Indeed, as we noted in Part I, because earlier invention is not prior art if it is "abandoned, suppressed, or concealed,"[77] the later-inventor that obtains a patent can actually claim infringement against the earlier inventor that kept the invention as a trade secret.[78]

In a closely related strategy, some patentees will file follow-on "blocking" patents to prevent a competitor from benefiting from the competitor's *own patents*.[79] A common misconception is that a patent provides an affirmative right to its holder to practice it—for instance, to sell products that fall within the scope of the patent's claims.[80] However, patents are only "negative" rights—that is, they provide their holders with a right to exclude so as to prevent the "infringing" behavior of others. In Part I, we offered an example of Comm Co., which held a patent on a communications protocol, effectively blocking Chip Co. from selling its innovative (and patented) microprocessor. Comm Co. would hold this right to exclude regardless of whether Chip Co.'s patent covered its microprocessor *coupled with* the communications protocol claimed in Comm Co.'s patent, resulting in leverage for Comm Co. to extract a payment from Chip Co.

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74. *See* Nathan Eddy, *Vonage, AT & T Agree on Patent Lawsuit Settlement*, CHANNEL WEB, Dec. 26, 2007, http://www.crn.com/networking/205203144.

75. *See* Yahoo! Finance, Income Statement for Vonage Holdings Corporation, http://finance.yahoo.com/q/is?s=VG&annual (last visited Apr. 15, 2008) (Dec. 31, 2007 data).

76. David Shabelman, *Some Hope for Vonage*, THEDEAL.COM, Nov. 9, 2007, *available at* Lexis-Nexis, News-All file; *see also* Seth Wallis-Jones, *Growth Slows But Vonage Trims Losses on Path to Profits*, GLOBAL INSIGHT, Feb. 14, 2008.

77. 35 U.S.C. § 102(g)(2) (2000).

78. As we noted earlier, there is a narrow exception in certain situations of "prior use" involving business methods. *See supra* note 18.

79. STEPHEN C. GLAZIER, PATENT STRATEGIES FOR BUSINESS 34 (2008) (describing this "picket fence" strategy).

80. *See, e.g.*, Robert P. Merges, *One Hundred Years of Solicitude: Intellectual Property Law*, 1900-2000, 88 CALIF. L. REV. 2187, 2222 (2000).

8. Patents as Substitutes for Nondisclosure Agreements

Perhaps the most subtle reason for filing for patents is to acquire a nonnegotiable form of nondisclosure agreement (NDA) with broad injunctive relief. NDAs are contracts used to restrict the disclosure or use of confidential information by employees or third parties. For instance, when a technology company hires an engineer, the employment agreement will usually contain nondisclosure provisions that prevent the employee from disclosing or using knowledge gained during employment that is not in the public domain. Another common instance when NDAs are signed is when two companies collaborate in development. Finally, when an individual inventor seeks to have her invention commercialized, often NDAs are signed before any disclosure or negotiation.

Patents may offer a stronger "fix" to information disclosure than merely using NDAs. First, although NDAs typically provide for injunctive relief, that relief frequently relates to the disclosure of the confidential information, not the sale of a product incorporating the confidential information, because of powerful exemptions available to the nondisclosing party.[81] Second, it is often difficult to prove that an NDA has been breached.[82] For instance, if a former employee privy to confidential information is at all duplicitous, she may disclose the information orally—and in very broad terms—to another employee who actually incorporates it into an end product, without leaving an evidentiary trail. Third, in some commercial situations, a third party will refuse to sign an NDA.[83] A patent will usually overcome these problems, because it binds the world—not just the parties to the NDA—not to make, use, or sell a product embodying the confidential information, regardless of whether the information was stolen, and it typically does so with an injunctive remedy.

9. "Image is Everything" Patenting

A final explanation for patenting may find its basis in the vagaries of human psychology. Some inventors appear to apply for patents to validate

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81. *See, e.g.*, Robert Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L.J. 1477, 1498 (2005) [hereinafter Merges, *A Transactional View*].

82. *See, e.g.*, M. Scott McDonald, Symposium, The Role of Contract in the Modern Employment Relationship: Noncompete Contracts: Understanding the Cost of Unpredictability, 10 TEX. WESLEYAN L. REV. 137, 149-50 (2003); *cf.* Greenberg v. Croydon Plastics Co., 378 F. Supp. 806, 814 (E.D. Pa. 1974) ("Plaintiffs in trade secret cases . . . are confronted with an extraordinarily difficult task. Misappropriation and misuse can rarely be proved by convincing direct evidence. . . . Against this often delicate construct of circumstantial evidence there frequently must be balanced defendants and defendants' witnesses who directly deny everything.").

83. *See, e.g.*, Merges, *A Transactional View*, *supra* note 81, at 1498 n.61.

their ideas: the patent may offer credibility by certifying that the technology met the government's (supposedly) stringent utility, novelty, and non-obviousness standards. According to a popular book for independent inventors, *Patent It Yourself*, "[s]ome inventors file for and obtain patents mainly for vanity, or the prestige a patent brings."[84]

Whatever the tarnish of late on the U.S. Patent Office among some engineers, for the general public, a patent still seems to have an aura of importance in signifying the novelty of a product. As we recounted in Part I, many companies tag their advertisements with the hackneyed "patent-pending" moniker (oddly, even if the patent has issued).[85] Although it appears no one has yet to perform an empirical study of the effectiveness of adding "patent-pending" to advertisements, no one seems to doubt as much,[86] and the examples are numerous.[87]

B. Reasons for Not Patenting

Given the explanations above, it may not be surprising that the number of patent applications filed at the U.S. Patent Office has grown dramatically in the past 25 years.[88] Researchers have found different explanations for the upsurge in patenting over this period[89]—including important changes

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84. DAVID PRESSMAN, PATENT IT YOURSELF 8 (2006). Of course, for those software engineers adamantly opposed to patents, being listed on one would presumably be considered a pock. Interestingly, in a recent study examining the relationship between the patenting activity of engineers and those aspects of their job most important to them, "intellectual challenge" was much more strongly correlated to patenting rates than other factors, most notably economic rewards. Henry Sauermann & Wes Cohen, "I Don't Work for Money": The Motives of Scientists and Engineers 8 (Mar. 7, 2008), www.law.berkeley.edu/institutes/bclt/entrepreneurship/presentations/Friday/830am/sauermann.pdf (slide show presentation).

85. Peter Menell suggested to one of the authors that perhaps the "patent-pending" phrase is more effective than a mere "patented" tagline, because the former portrays a product so "cutting edge" that not enough time has passed for even the patent to issue.

86. *See, e.g.*, ROBERT C. DORR & CHRISTOPHER H. MUNCH, PROTECTING TRADE SECRETS, PATENTS, COPYRIGHTS, AND TRADEMARKS 216 (1995) ("[T]he words patent pending may have substantial psychological or marketing value.").

87. *See, e.g.*, Constant Light (Patent Pending) Technology, http://www.extremecctv.com/tech_ConstantLight.php (last visited Apr. 17, 2008); Learn how to get the patent pending InstantBuzz now, http://www.squidoo.com/Levi_Holman (last visited Apr. 17, 2008); Scorpion EXO-400 Sting Full Face Street Motorcycle Helmets, http://www.extremesupply.com/scorpionhelmets/scorpionexo400sting.htm (last visited Apr. 11, 2008).

88. *See* James Bessen & Michael J. Meurer, Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovators at Risk 63 (2008).

89. *See, e.g.*, Bronwyn H. Hall, *Exploring the Patent Explosion* (Nat'l Bureau of Econ. Res., Working Paper No. 10605, 2004), *available at* http://www.nber.org/papers/w10605 (demonstrating that a significant change occurred in the rate of patenting shortly

over the last few decades that have strengthened patent rights—but reasons remain *not to patent* inventions that are otherwise objectively patentable.

1. *Technology is Seemingly Not Patentable*

Some inventors think that their invention is not patentable, because they believe the invention either is outside the scope of the subject matter allowed by patent law or is obvious in view of the prior art.[90] Given the wide scope of subject matter allowed to be patented, it is very likely that some inventors mistakenly do not file. Among the oft-repeated examples of subject matter that might seem unpatentable to the uninitiated, but for which patents have issued, are many business methods, including schemes to avoid paying taxes,[91] and so-called "mental steps" patents, such as a physician's determination of whether an amount of a naturally occurring chemical in the body indicates illness.[92]

Moreover, even when discrete ideas have been previously patented, savvy inventors (and their attorneys) know that there are many ways to repackage old inventions. Many ideas that are seemingly obvious, even to lay observers, have passed muster in the Patent Office.[93] Favorite examples are Amazon.com's "one-click" patent, which claims in essential part, "a single-action ordering component . . . in response to performance of

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after the creation of the Federal Circuit); Samuel Kortum & Josh Lerner, *Stronger Protection or Technological Revolution: What is Behind the Recent Surge in Patenting?* (Nat'l Bureau of Econ. Res., Working Paper No. 6204, 1997), *available at* http://www.nber.org/papers/w6204 (suggesting that the rise in patenting during the 1990s was primarily due to increased innovation, and not the pro-patent regime created by legal changes).

90. *See, e.g.*, Kenneth M. Bush, *Advising Clients: How to Recognize and Protect Intellectual Property*, 62 ALA. LAW. 380, 380 (2001) (claiming that from large companies down to individual inventors, potential clients often do not understand what is protectable as intellectual property).

91. *See generally* William A. Drennan, The Patented Loophole: How Should Congress Respond to this Judicial Invention?, 59 FLA. L. REV. 229 (2007).

92. *See* Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc., 548 U.S. 124, 127-35 (2006) (Breyer, J., dissenting) (dissenting from the Court's dismissal of the case as improvidently granted and reasoning that the claim-at-issue merely "instructs the user to (1) obtain test results and (2) think about them").

93. *See, e.g.*, FTC, *supra* note 38, ch. 4, at 8-19 (citing patent and economic scholars that criticize the lenient nature of the nonobvious requirement); Robert P. Merges, Symposium, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 598 (1999) (noting that standards at the USPTO would be raised if the requirements were tightened).

only a single action,"[94] Smucker's crustless peanut butter-and-jelly sandwich (which has since been invalidated),[95] and a method of swinging on a swing (invented by a 5-year old).[96] So, while novelty and nonobviousness are certainly bars to patenting, they are perhaps less important than at first glance. But it may be the case that the least experienced—i.e., first-time entrepreneurs—are the most at risk of misperceiving the broad scope of patentability and, thus, of wrongly failing to file.

2. *The High Costs of Patenting and Patent Litigation*

Simple economics suggest that the high cost of patenting will deter some inventors from filing. And the costs are not merely pecuniary—opportunity costs associated with the time that managers and engineers spend patenting instead of attending to their key functions may be significant.[97] Assuming that roughly 50% of patents are ever practiced,[98] and that only about 10% of patents confer some ability to increase prices or gain licensing or litigation revenue,[99] the expected value of additional profits flowing from patent protection must be on the order of $500,000 to justify the filing of a patent application.[100] Furthermore, unless a company

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94. Claim 6, U.S. Pat. No. 5,960,411 (filed Sept. 12, 1997); *see generally* Stephen Dirksen et al., *Who's Afraid of* Amazon.com v. Barnesandnoble.com*?*, 2001 DUKE L. & TECH. REV. 3 (2001).

95. *See* Bill Haltom, *But Seriously, Folks! No patent for PBJ!*, 41 TENN. BAR J. 34 (2005).

96. U.S. Pat. No. 6,368,227 (filed Nov. 17, 2000); *see* Jeff Hecht, *Boy Takes Swing at U.S. Patents*, NEW SCIENTIST, Apr. 17, 2002, http://www.newscientist.com/article.ns?id=dn2178.

97. *See, e.g.*, Mann, *supra* note 39, at 983.

98. *See, e.g.*, Roger L. Beck, *Competition for Patent Monopolies*, 3 RES. L. & ECON. 91, 98 (1981).

99. Mark A. Lemley estimates that only about 1.5% of all patents are ever litigated and only 5% are ever licensed for royalty. Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1501-07 (2001). One would expect that a large share of patents that confer any significant market power would be licensed or litigated. Assuming this value is about 50%, and assuming that all patents litigated or licensed for royalty confer market power (which as an overestimate), then about 10% of all patents confer significant market power.

100. In particular, if the average out-of-pocket cost of filing a patent is $20,000, *see supra* note 34 and accompanying text, and a conservative $5,000 of internal costs is pegged to lost engineering time, then the expected net benefits must be greater than $25,000 to justify filing. If all patents are treated as equal, and the chance of the patent being practiced (about 50%) and the chance of conferring market power (about 10%) are independent, then the likelihood that a practiced patent will confer market power is 5%. Thus, the additional profits added by a patent with market power must be about $500,000 on average to justify filing. Of course, the probability a patent is practiced and the probability it confers market power are likely to be highly correlated. But the intent here is to

can credibly threaten litigation, the value of a patent significantly diminishes.[101] The rational would-be infringer, when confronted with a patent held by an individual inventor or a small company with limited resources, would likely be more willing to engage in infringing behavior, calculating that the risk of enforcement is lower. Even if the patentee files suit, the would-be infringer would likely be able to settle the case for much less than it would against a well-funded opponent. Following this argument, entrepreneurs and small companies will likely have an even greater disincentive to file for patents.

3. Perceptions that Patents Provide Weak Protection: "Design Arounds"

Some view patents, especially in the software industry, as a "gigantic waste of time and money."[102] The belief that certain kinds of patents are easy to "design around" often leads companies to think that patents are worthless.[103] That is, if the claims of the patent are narrow enough, a third-party can escape infringement by making simple changes to its products to achieve the same functionality. There are a few reasons to doubt, however, that *in any field*, it is usually easy to design around patents. First, although the disclosure in a patent must provide sufficient written description so as to enable the claims that are drafted,[104] the Federal Circuit in recent years has not applied the enablement or written description doctrines very strictly.[105] This trend has generally allowed patentees to claim their inventions much more broadly than the embodiments disclosed in the patent specification. Second, courts have tended to construe claims more

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provide a rough estimate of the long-term value a patent must confer to justify filing. In reality, this figure will vary widely depending on the exact costs of filing, the amount of engineering distraction time, and the likelihood that the patent will be practiced, licensed, or litigated. Additionally, in some situations, the defensive, marketing, or vanity value of a potential patent should be taken into account. *See supra* Section II.A.9.

101. This credible threat includes the ability to detect infringement in the first instance, which may be very costly itself, especially for patents on internal processes that are not discernable from commercial products. *See, e.g.*, Rebecca S. Eisenberg, Symposium, *Genetics and the Law: Patenting the Human Genome*, 39 EMORY L.J. 721, 739 (1990).

102. Bruce Byfield, *End Software Patents Project Comes Out Swinging*, LINUX.COM, Feb. 29, 2008, http://www.linux.com/feature/128110 (quoting Brad Feld, founder and chair of Mobius Venture Capital).

103. For instance, one start-up company CFO asserts that "[t]here are a lot of ways to work around [software] patents." Mann, *supra* note 39, at 978 n.5.

104. *See* 35 U.S.C. § 112 (2000).

105. *See, e.g.*, BESSEN & MEURER, *supra* note 88, at 65-67; Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CALIF. L. REV. 1, 24 (2001).

broadly than their language indicates.[106] And finally, claims need not be literally infringed—the doctrine of equivalents provides that if the accused product is "insubstantially different" from that claimed or performs "substantially the same function in substantially the same way to achieve substantially the same result" as that claimed, there is infringement nonetheless.[107] Accordingly, claims that patents are easy to design around should be eyed skeptically. Based on the available data, at least some software patents appear very broad in scope.[108] But like most of the issues we address in this Article, more empirical study is needed to make a conclusive determination.

4. Other Forms of Protection

The last major reason why companies may not patent is that other forms of legal or nonlegal protection are perceived as adequate, or even superior, given their business strategies. Patents are typically complements to most other forms of legal protection over innovations, including copyright, trademark, and most contractual protections—that is, patents may co-exist with these legal forms of protection to provide supplementary rights.[109] Thus, a company choosing to protect its invention with a patent, copyright, trademark, or contractual provisions need only determine whether the marginal benefit of adding any one of these forms of IP protection outweighs the marginal costs. Alternatively, a company may have "first-mover" advantages or hold complementary assets that effectively prevent competition in the market for commercial embodiments of the in-

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106. *See generally* Michael Risch, *The Failure of Public Notice in Patent Prosecution*, 21 HARV. J.L. & TECH. 179, 210-12 (2007).

107. Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 731 (2002) ("Unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying."); Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950) ("'To temper unsparing logic and prevent an infringer from stealing the benefit of the invention' a patentee may invoke this doctrine to proceed against the producer of a device 'if it performs substantially the same function in substantially the same way to obtain the same result.'") (quoting Royal Typewriter Co. v. Remington Rand, Inc., 168 F.2d 691, 692 (2d Cir. 1948) (Hand, J.) and Sanitary Refrigerator Co. v. Winters, 280 U.S. 30, 42 (1929)).

108. *See* Cohen & Lemley, *supra* note 105, at 13, 39.

109. *See* Stuart J.H. Graham & Deepak Somaya, Vermeers and Rembrandts in the Same Attic: Complementarity between Copyright and Trademark Leveraging Strategies in Software (Feb. 2006) (unpublished manuscript on file with Ga. Inst. of Tech. TI:GER working paper series), *available a*t http://tiger.gatech.edu/files/gt_tiger_complementary.pdf.

vention.[110] Although, as we noted earlier, these decisions can be tricky, a rational company should not forgo patenting simply because it believes that trademarks, copyrights, contractual, or nonlegal protections are sufficient in themselves.

On the other hand, patents and trade secrets, at least by design, cannot simultaneously protect an invention.[111] In theory, patent publication will destroy any trade secret the patentee has in the invention. In practice, however, because the enablement and written description requirements are weak, and the related "best mode" requirement is vague and hard to prove violation of in court, a patentee may often be able to patent an invention and keep its "secret sauce" a trade secret.[112] Thus, the stark contrast that some scholars present between these two options is often much fuzzier.[113] Of course, if a company strongly desires to keep all aspects of its invention secret, and believes it can do so, it will not patent.

C. The Decision to Patent (or Not): The Inconclusive Data

Despite the extensive theoretical literature, apart from scattered anecdotes, there is relatively little empirical evidence about patenting by start-up companies.[114] One line of studies has surveyed large, usually publicly traded companies.[115] Not only did these studies fail to target start-up com-

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110. *See* David J. Teece, *Profiting from Technological Innovation*: *Implications for Integration, Collaboration, Licensing and Public Policy*, 15 RES. POL'Y 285 (1986) (discussing the benefits of first-mover advantages and complementary assets).

111. *See, e.g.*, LANDES & POSNER, *supra* note 26, at 294-95; Dan L. Burk, *Misappropriation of Trade Secrets in Biotechnology Licensing*, 4 ALB. L.J. SCI. & TECH. 121, 130 (1994) ("For those inventions that are patentable subject matter, concurrent patent protection and trade secret protection are incompatible because the disclosure required by the patent destroys trade secrecy.").

112. For instance, both patents and trade secrets were used by Pilkington Glass to protect codified and tacit elements of the firm's "float glass" invention, a radical improvement in creating smooth glass. *See* United States v. Pilkington, PLC, No. CV 94-345, 1994 WL 750645 (D. Ariz. Dec. 22, 1994). Moreover, applicants may enjoy trade secrecy while a patent application is pending, providing the applicant priority advantages and the protection of secrecy before publication. *See* Graham & Somaya, *supra* note 109.

113. *See* Graham & Somaya, *supra* note 109.

114. For instance, Mann, *supra* note 39, provides a much-needed look at the use of patents by venture-backed software companies, but his study relies solely on in-person interviews with a relatively small sample set. *See id.* at 961 n.* (listing interviewees).

115. C.T. TAYLOR & Z. A. SILBERSTON, THE ECONOMIC IMPACT OF THE PATENT SYSTEM: A STUDY OF THE BRITISH EXPERIENCE (1973); Edwin Mansfield, *Patents and Innovation: An Empirical Study*, 32 MGMT. SCI. 173 (1986); Edwin Mansfield, Mark Schwartz, & Samuel Wagner, *Imitation Costs and Patents: An Empirical Study*, 91 ECON. J. 907 (1981); Richard C. Levin, Alvin K. Klevorick, Richard R. Nelson & Sidney G. Winter, *Appropriating the Returns from Industrial Research and Development*, 3

panies,[116] but they also left unanswered questions that are of particular interest for start-ups. For instance, these studies generally did not ask why firms decide to forgo patenting, how companies react to competitors that hold patents, or how patents relate to other types of legal protection for innovations.[117]

Additionally, significant shifts have occurred in industry and innovation dynamics since these surveys were completed, including the rise of the software and biotechnology industries. These sectors have evolved significantly following important legal decisions in the early 1980s.[118] Finally, there have been major changes in the patent law landscape, including the emergence of so-called "patent trolls,"[119] shifting case law from the Federal Circuit and the Supreme Court,[120] as well as a significant upward trend in overall patenting and in the hazards of litigation.[121] In

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BROOKINGS PAPERS ON ECON. ACTIVITY 783 (1987); Wesley M. Cohen, Richard R. Nelson, & John P. Walsh, *Protecting Their Intellectual Assets: Appropriability Condition and Why U.S. Manufacturing Firms Patent (or Not)* (Nat'l Bureau of Econ. Res., Working Paper No. 7552, 2000), *available at* http://www.nber.org/papers/w7552.

The Yale Survey, Levin et al. *supra*, and the Carnegie-Mellon Survey, Cohen et al. *supra*, targeted managers at large industrial companies to determine why and how patents were being used by their companies. These surveys, and the research that they spawned, helped uncover the motivations for large-company patenting, and the relative importance of different methods of profiting from innovation such as patenting, secrecy, and lead time.

116. The Yale Survey used a ranking of all publicly traded companies with R&D expenses greater than 1% of sales or $35 million in 1981. Levin et al., *supra* note 115, at 819. Similarly, the Carnegie-Mellon Survey surveyed eligible labs in the Directory of American Research and Technology as well as other publicly traded firms, oversampling on Fortune 500 companies. Cohen et al., *supra* note 115, at 4.

117. Although the surveys asked respondents about the importance of patenting and trade secrecy, neither investigated the role of other specific legal protections, such as trademark and copyright. Levin et al., *supra* note 115, at 785; Cohen et al., *supra* note 115, at 3-4.

118. *See, e.g.*, Diamond v. Diehr, 450 U.S. 175 (1981) (holding that the execution of a process, controlled by running a computer program, is patentable); Diamond v. Chakrabarty, 447 U.S. 303 (1980) (holding that genetically modified microorganisms are patentable). The software industry is especially different today from the early 1980s or 1990s. *See*, *e.g.*, Stuart J.H. Graham & David C. Mowery, *Intellectual Property Protection in the U.S. Software Industry*, *in* PATENTS IN THE KNOWLEDGE-BASED ECONOMY 219-227 (Wesley Cohen & Steven Merrill, eds., 2003).

119. *See supra* note 4.

120. *See, e.g.*, Rebecca S. Eisenberg, Commentary, *The Supreme Court and the Federal Circuit: Visitation and Custody of Patent Law*, 106 MICH. L. REV. FIRST IMPRESSIONS 28 (2007); Harold C. Wegner, Commentary, *Making Sense of* KSR *and Other Patent Cases*, 106 MICH. L. REV. FIRST IMPRESSIONS 39 (2007).

121. James Bessen & Michael J. Meurer, *The Patent Litigation Explosion* (Boston U. Sch. of L., Working Paper No. 05-18, 2005), *available at* http://ssrn.com/abstract=

sum, although these surveys may provide instructive background on what may be the patenting behavior of new, embryonic firms, they certainly are far from conclusive.

More recently, several studies have mined publicly available, archival data to elucidate the role of patenting in the evolution of small companies. Lerner, for instance, examined the patenting behavior of young biotechnology firms, and showed that companies' decisions to patent are influenced by patent litigation costs.[122] Hsu and Ziedonis used existing data to demonstrate that, for early-stage semiconductor companies, holding patents is associated with higher valuations by investors.[123] Cockburn and MacGarvie found that the growth in software patenting has prolonged the funding cycle for some companies, and determined that companies' initial public offerings may be delayed in technologies characterized by dense patenting.[124] Mann and Sager recognized that increased patenting by a given software company is significantly correlated with total investment, the number of financing rounds, and firm longevity.[125]

In sum, while these studies are illustrative, they do not systematically address the drivers of patenting by start-ups.[126] Unfortunately, other than data on issued patents and pending applications available from the U.S. Patent Office, there is no comprehensive data available on the dynamics of U.S. firm patenting, licensing, and litigation among start-up companies. Thus, many important questions relating broadly to the use of patents by small companies, particularly technology start-ups—including the one of our title, "Why do start-ups patent?"—have yet to be answered by researchers.

831685 (claiming that the hazard of litigation rises for companies that spend more on R&D, file more patents, and are publicly traded).

122. Josh Lerner, *Patenting in the Shadow of Competitors*, 38 J.L. & ECON. 463 (1995).

123. *See supra* note 59.

124. *See* Cockburn & MacGarvie, *supra* note 60.

125. Mann & Sager, *supra* note 12.

126. Moreover, because these studies relied upon archival data, they are at best a proxy for firm strategy and behavior.

III. UNCOVERING THE DATA: THE KAUFFMAN FOUNDATION SURVEY OF PATENTS & ENTREPRENEURSHIP

A. Addressing the Lacuna in Prior Research

Prompted by the lack of adequate data and the changing patent environment, the authors and other investigators developed—and are now administering—the first targeted survey in the United States of start-up and early-stage companies' patent prosecution, licensing, and litigation strategies and experience.[127] Formally titled the "The 2008 Berkeley Patent Survey: Entrepreneurial Companies and the Patent System," it includes a variety of questions centered on how patenting, patent licensing, and patent litigation relate to company innovation, capital formation, business strategies, competition, and other forms of intellectual property protection.

One of our principal aims is to determine what motivates invention and innovation for entrepreneurs and startup companies. In this regard, the survey seeks to inform a number of unresolved questions in the scholarly literature: Do patents offer a meaningful incentive for start-up companies to conceive of patentable inventions and to develop these inventions into marketable products? What role do patents play in effectively bringing these products to market and in keeping competitors at bay? Or are patents mainly a tool for raising capital and improving the chances of being acquired or going public?[128]

These questions have important implications for the overall structure of the economy. As Joseph Schumpeter pointed out in the 1910s, small company innovation plays a crucial role in the success and dynamism of capitalist economies.[129] For instance, if the survey shows that patents play

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127. In 2000, a number of European scholars conducted a survey of small firms owning patents. WILLIAM KINGSTON, ENFORCING SMALL FIRMS' PATENT RIGHTS (2000), *available at* www.pedz.uni-mannheim.de/daten/edz-h/gdb/00/studies_enforcing_firms_patent_rights.pdf (last visited July 9, 2008). However, this study mainly focused on the ability of small firms to enforce their patents and did not investigate *why* small firms patent (or not). *See id.*

128. In this regard, the survey also aims to determine the role of patenting in achieving successful business models. For instance, are startups applying for patents to protect their commercial products? If so, is that strategy a successful one? Or are these companies patenting to accomplish other business goals—for instance, as cross-licensing bargaining chips to obtain the right to use another company's patents? *Cf. supra* notes 7-11 and accompanying text (discussing cross-licensing deals among major patent holders).

129. JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST, AND THE BUSINESS CYCLE 74-94

a previously misunderstood role in facilitating the formation and success of startup companies, such a finding would have enormous implications for law and policy. Thus, the survey data may be critical to evaluating whether the patent system is too complex and costly for entrepreneurial companies to manage, and ultimately, how patent reform proposals might affect entrepreneurial companies. These questions have particular relevance to the topics at issue in this Article: What are the factors that drive entrepreneurs in early-stage technology companies to seek patent protection on their innovations? And, what factors influence their decision to forgo patenting?

B. Why do Start-ups Patent (and Why Not)?: Our Survey Questions

The survey questions are designed to tackle these important issues head on. Importantly, we engaged in both an extensive literature review and a series of in-depth interviews. While the literature review alerted us to theory and to the lack of complete information in the scholarly record,[130] our in-depth interviews provided us with new perspectives, from entrepreneurs, technology inventors, venture capitalists, lawyers, and university technology-transfer officers.[131] These discussions allowed us to understand in greater depth the ways in which entrepreneurs are actually using and responding to patents in their competitive environments.

Because our study is aimed primarily at high-technology companies, our research focuses on three important sectors: biotechnology and medical devices, software and allied information technologies (IT), and clean/green technologies.[132] We are administering our questionnaire to top

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(Redvers Opie trans., Transaction Publishers 1983) (1911) (pointing to the role that entrepreneurial innovation plays in driving competition).

130. We began by studying literature from the 1970s and 1980s examining the relationship between companies' product innovation, research and development spending, and patenting. *See* Mansfield, *supra* note 115; Mansfield, Schwartz, & Wagner, *supra* note 115. We also examined research emanating from surveys launched in the 1980s and 1990s that helped the field understand how patents affect companies' structure and strategy. *See* Cohen, Nelson & Walsh, *supra* note 115; Levin, Klevorick, Nelson & Winter *supra* note 115; Jerry G. Thursby & Marie C. Thursby, *Who is Selling the Ivory Tower?: Sources of Growth in University Licensing* (Nat'l Bureau of Econ. Res., Working Paper No. W7718, 2000), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=232103 (relying on survey evidence from businesses that license in university inventions).

131. A complete list of those persons who provided us invaluable comments in forming the survey is available in the introductory note of this Article.

132. Our analysis of companies that received venture funding during the last 10 years shows that over 75% are classified into the primary industries "information" (61%),

managers at nearly 12,000 U.S. "entrepreneurial companies"—i.e., firms that were founded in the United States during the last ten years—in these sectors.[133] We are conducting additional testing by oversampling venture-backed companies.

From a research perspective, one of the most exciting aspects of collecting survey responses from entrepreneurial companies is the ability to link the data with public information about the companies.[134] By aggregating the responses with data about patent prosecution and litigation, revenues, profits, financing, headcount, location, business strategy, industry, and competitors, we will be able to present a much more robust account of start-up companies' interactions with the patent system. Most importantly, we expect this aggregation of data will allow us to answer questions that historically have been outside the reach of scholars.

In this regard, while formulating the survey questions, we realized that start-up companies presented unique issues that not only required us to significantly redraft questions from previous studies, but also to create entirely new sets of questions. Our questionnaire inquires about each respondent company's background, business profile, business model, and innovation focus. Questions also explore the company's patenting characteristics, its motivation for patenting, its responses to patents in its competitive environment, and its use of other forms of intellectual property and related strategies, including copyrights, trademarks, and "open source" models. While many of the survey questions are pertinent to the topic of this Article, two of the survey questions directly address it.

The first of these questions (see below) seeks answers to why start-up companies decide not to patent. Having engaged in preliminary analysis using U.S. Patent Office data, we know that many of our sample companies have never filed for a patent. Accordingly, determining why technology start-ups do not patent may be just as important as ascertaining why they do.

> Q1: Thinking about the last major <u>technology</u> innovation that your company <u>did not patent</u>, which if any of the following in-

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"health" (15%), and energy (<1%). The data for our analysis are derived from VentureXpert (Thomson), http://vx.thomsonib.com/NASApp/VxComponent/VXMain.jsp.

133. Our sample frame is drawn from Dun & Bradstreet and VentureXpert (Thomson) data, using both the Standard Industry Classification (SIC) and North American Industry Classification System (NAICS) to classify companies into relevant sectors.

134. To maintain the privacy of companies' responses, investigators and co-authors will only publish aggregate data and survey responses from multiple companies in a given sector, and not individualized company data and responses.

fluenced your company's decision not to patent? (Please check √ ALL that apply)

a. Did not want to disclose information	☐
b. Cost of getting the patent, including attorneys' fees	☐
c. Competitors could have easily invented around the patent	☐
d. Believed that trade secret was adequate protection	☐
e. Cost of enforcing the patent, including actions in court	☐
f. Did not believe the technology was patentable	☐
g. No need for legal protection	☐

Given the length constraints we set for our survey instrument,[135] we included only the most salient reasons.[136] We also decided to limit the question to the company's last "major" technology innovation, since many minor innovations are not patented merely because of the high costs of patenting.[137] Finally, to make the question easier for our respondents, we chose a more constrained "yes/no" answer option instead of allowing answers with large variation (e.g., Likert-like scaling: "not important," "somewhat important," etc.).[138]

Based on our review of the literature and discussions with experts, we hypothesize that the major reasons for start-up companies not patenting a major innovation are the cost of getting the patent and the distraction of managers and engineers from their regular work. It will be interesting to compare our responses on the cost questions with the results of the Carne-

135. Based on feedback from numerous individuals, including entrepreneurs, the investigators decided to limit the survey to about 30 questions taking no more than 15 minutes to answer.

136. We discovered these reasons through research and interviews.

137. Additionally, by limiting the question to the company's most recent innovation, we could avoid responses based on "general feelings," thereby generating a more accurate account of companies' decisions not to patent.

138. Because we did not expect our respondents to have highly nuanced views on their decision not to file and to reduce the length of the survey, we did follow up this question by asking, "Which of these reasons was the most important reason not to patent?"

gie-Mellon Survey, in which the costs of patent prosecution and enforcement were relatively unimportant reasons (37% and 25% of respondents, respectively) for large companies to forgo patenting.[139] Moreover, for some industries, such as software, we expect a higher rate of "no need for legal protection" and "ease of design around" responses.

Our second question concerns the relative importance of various reasons for patenting for those companies that have filed for at least one patent since their founding (see below).

Q2: How important or unimportant have the following been to your company in seeking patent protection in the United States:

	Very Important	Moderately Important	Slightly Important	Not at all Important
Preventing others from copying our products or services	☐	☐	☐	☐
Improving our chances of securing investment	☐	☐	☐	☐
Obtaining licensing revenues	☐	☐	☐	☐
Improving chances/quality of liquidity (e.g., acquisition/IPO)	☐	☐	☐	☐
Preventing patent infringement actions against us	☐	☐	☐	☐
Improving negotiating position with other companies (for example, cross-licensing)	☐	☐	☐	☐
Enhancing company's reputation/product image	☐	☐	☐	☐
Other(specify) _____	☐	☐	☐	☐

139. *See* Cohen, Nelson & Walsh, *supra* note 115, at 45 fig. 5. Responses in the Carnegie Mellon survey were limited to those respondents stating that "preventing copying" was a factor in driving the product-patenting decision. *See id.* at 47 fig. 7.

Again, space constraints limited us from listing all of the possible reasons for patenting that we have discussed in this Article. Because the literature indicates that patents are often important to the financing activities and exit strategies of start-up companies, we included these explanations. Furthermore, with so little data available on the licensing characteristics of start-up firms, we incorporated two options on licensing activity: earning royalties and cross-licensing. We also included several other responses that the scholars and experts we interviewed believed were important, such as preventing copying, preventing suits, and improving product image. Finally, because we could not be sure of capturing every possibility, we allowed our respondents to alert us to additional reasons through an open-ended "Other (specify)" option.

Based upon our interviews, and our review of the literature presented earlier, we hypothesize that "securing investment" will rank highly on the list, along with "preventing others from copying." Again, it will be interesting to compare our responses on the latter question with the results of the Carnegie-Mellon Survey, in which virtually all (96%) of the large-firm respondents stated that "preventing copying" was a factor in driving the patenting decision.[140] For later-stage start-ups, we expect that "improving chances/quality of liquidity" and "obtaining licensing revenues" will play a greater role than for early-stage companies. We would be somewhat surprised if many start-ups are filing for patents to improve their position in cross-licensing negotiations, but it will be interesting to determine which technology sub-sectors include companies that mark this reason as an important one.

In sum, while the "average response" among all of our respondents will be a noteworthy result of the survey, the rich supplemental data we have collected will allow us to generate our most interesting results. Specifically, by segmenting our dataset, we expect to be able to offer detailed insights on the drivers of patenting behavior. For instance, we will test whether there are industry, sector, or product characteristics that make certain patenting explanations more salient. By partitioning our sample companies by age and size, we will comment on how the evolution and growth of companies bears upon the development of patenting strategies. By parceling our companies by their expressed innovation strategies and technology focus, we will be able to determine whether certain explanations for patenting are technology-specific. These are but some of the

140. *See* Cohen, Nelson & Walsh, *supra* note 115, at 47 fig. 7.

ways that we will be able to parse our data to answer many questions about start-up company patenting.[141]

By gathering targeted responses from numerous companies, and then incorporating detailed supplemental information into the data, the Berkeley Patent Survey offers the promise of instructing scholars, practitioners, and policymakers in areas that have been hidden from view or populated with anecdote. For an important class of economic agents, we are optimistic that we will finally be able to systematically answer the questions: What are the determinants of patenting by start-up technology companies? And, why don't these companies patent their technologies?

141. For example, our data will also permit us to partition our companies by their expected liquidity event, enabling us to differentiate the explanations for patenting based on the desired "exit strategy" of the company. Other categories include a segmentation of the companies by their success and failure at securing investment. Parceling our data according to investment characteristics will permit us to test hypotheses about the salience of different explanations based on the investment success of the firm. Dividing these companies by the type of technology they practice—which we will find by collecting patent portfolios of each respondent firm—will allow us to determine whether some explanations are more important to innovators practicing in different technology arts. Furthermore, because we have data on the competitors of many of our respondents, we will be able to map the competitive and market structure of the environment in which our respondents are operating, enabling us to test hypotheses about the role of competition in patenting behavior. Such analysis can also be extended to patenting concentration. By collecting patent portfolios not only for our respondent companies, but also for their competitors, we will be able to comment meaningfully on the role of "patent concentration" (i.e., patent thickets) upon the drivers of start-up company patenting.

FIRST AMENDMENT RIGHTS TO PROTECTED EXPRESSION: WHAT ARE THE TRADITIONAL CONTOURS OF COPYRIGHT LAW?

By William McGinty†

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† The author thanks Professor Molly Van Houweling. Professor Van Houweling's precise questions and gentle nudging helped me to articulate my argument much better than I could have alone.

Because the judiciary has rendered toothless the Copyright Clause's[1] limits on Congressional power, the First Amendment is the last hope for anyone arguing that the Constitution places substantive limits on Congress's ability to pass copyright laws. This is because even if the Copyright Clause does not authorize a particular statute, the Commerce Clause[2] will.[3] Furthermore, where the Copyright Clause demands that copyrights last for only "limited times," Congress has broad discretion to determine what "limited" means.[4] But the fact that Article 1, section 8 authorizes a copyright law does not mean that it is consistent with the First Amendment.[5] The tensions between copyright law and the First Amendment are

1. U.S. CONST. art. I, § 8, cl. 8 has been called the "Patent Clause," the "Copyright Clause," the "Intellectual Property Clause," and the "Progress Clause" by various authors. The Supreme Court in *Eldred v. Ashcroft*, which was the latest Supreme Court decision interpreting the clause in the context of copyright law, used the term "Copyright Clause" and this Comment will conform to that convention. Eldred v. Ashcroft, 537 U.S. 186 (2002).

2. The Commerce Clause reads, "The Congress shall have Power . . . To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes." U.S. CONST. art. 1, § 8, cl. 3.

3. *See* United States v. Martignon, 492 F.3d 140 (2d Cir. 2007); KISS Catalog v. Passport Int'l Prods., 405 F. Supp. 2d 1169 (C.D. Cal. 2005); *cf.* United States v. Moghadam, 175 F.3d 1269 (11th Cir. 1999) (holding that the criminal anti-bootlegging provision was not "fundamentally inconsistent" with the Copyright Clause and therefore Congress had the power to enact it under the Commerce Clause).

4. *See Eldred*, 537 U.S. 186.

5. *See id.* at 221; Golan v. Gonzales, 501 F.3d 1179 (10th Cir. 2007).

particularly apparent upon examination of two amendments to the Copyright Act, enacted in 1994 as part of the Uruguay Round Agreements Act ("URAA"), the anti-bootlegging provisions and the copyright restoration provisions.[6]

In 1994, as part of the General Agreement on Tariffs and Trade ("GATT"), Congress passed the URAA. The URAA changed copyright law in the United States in two important ways. First, the act "restored" copyright to foreign works that, due to the formalities of the 1909 copyright regime,[7] had either never entered into copyright protection in the United States or fell into the public domain because their authors failed to renew their copyright registrations.[8] Second, the Act prohibited "bootlegging" by granting perpetual protection to live musical performances.[9] Both the restoration and the anti-bootlegging provisions erode the public domain: the former reduces the size of the existing public domain by pulling works from it, while the latter impedes the expansion of the future public domain by granting perpetual protection.

In the past year, both the Second and the Eighth Circuits, when considering the amendments to copyright law made pursuant to the URAA, have affirmed Congress's broad authorizations to enact laws under the Copyright and Commerce Clauses. In *United States v. Martignon*, the Second Circuit Court of Appeals held that the Commerce Clause authorized the anti-bootlegging provisions, which grant musical performers rights to prohibit unauthorized recordings of their performances.[10] In *Golan v. Gonzales*, the Eleventh Circuit Court of Appeals held that the Copyright Clause grants Congress the power, at least under limited circumstances, to remove works from the public domain—as done by the copyright restoration provisions.[11] Both courts, however, recognized that the changes to copyright law implicate rights granted by the First Amendment

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6. Uruguay Round Agreements Act §§ 512-14, 17 U.S.C. § 1101, 18 U.S.C. § 2319A, and 17 U.S.C. § 104A (2000).

7. *See* Copyright Act of 1909 §§ 8-24, 320 Stat. 1075, 1077-81 (repealed 1976) (requiring notice of copyright, a registration for a renewal term of copyright, the author to be a citizen of only certain countries, and that written works in the English language to be manufactured in the United States).

8. 17 U.S.C. § 104A. "The public domain" might refer to any valuable intellectual creation that is not protected by intellectual property rights. *See generally* Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J. 783 (2006).

9. 17 U.S.C. § 1101.

10. *Martignon*, 492 F.3d at 152.

11. Golan v. Gonzales, 501 F.3d 1179, 1186-87 (10th Cir. 2007).

and remanded the cases back to the district court level to fully examine those implications.[12]

This Comment argues that even if, as numerous courts have held, these provisions do not conflict with the Copyright Clause,[13] they may still be unconstitutional for violating the First Amendment. Upon First Amendment review, the anti-bootlegging provisions should fail both for lack of a "fair use" exception and because they prohibit the distribution of bootleg recordings both perpetually and retroactively, thereby harming expressive interests without granting incentives for the creation of new works. The restoration provisions, however, should survive a First Amendment challenge because they do not impose substantial burdens above and beyond those generally imposed by copyright law.

Part II presents a brief explanation of Congress's powers under the Copyright and Commerce Clauses, the doctrine of fair use, the basics of First Amendment review, and the traditional interaction between the First Amendment and copyright law. Part III examines possible definitions of "the traditional contours of copyright law" as used by the Supreme Court in *Eldred v. Ashcroft*.[14] Part IV applies First Amendment review to both the anti-bootlegging provisions and the restoration provisions to find the former in violation of the First Amendment and the latter consistent with it.

I. BACKGROUND LAW

This Part will first introduce the copyright restoration and anti-bootlegging provisions of the URAA. It will then briefly explain the powers of the Federal Government to pass copyright laws under the Copyright and Commerce Clauses and will conclude by providing background of First Amendment review and explaining the relationship between the First Amendment and copyright law.

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12. *Martignon*, 492 F.3d at 153; *Golan*, 501 F.3d at 1197.

13. *Golan*, 501 F.3d at 1179 (holding that the copyright renewal provisions did not violate the Copyright Clause); *Martignon*, 492 F.3d at 152 (holding that the Copyright Clause was irrelevant to the anti-bootlegging provisions); Luck's Music Library, Inc. v. Gonzales, 407 F.3d 1262 (D.C. Cir. 2005) (holding that the copyright renewal provisions did not violate the Copyright Clause); United States v. Moghadam, 175 F.3d 1281 (11th Cir. 1999) (holding that the anti-bootlegging provisions were not "fundamentally inconsistent" with the Copyright Clause); KISS Catalog v. Passport Int'l Prods., 405 F. Supp. 2d 1169 (C.D. Cal. 2005) (same).

14. Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).

A. The Uruguay Round Agreements Act's Effect on Copyright Law

The URAA codified the agreements reached in the Uruguay Round of the GATT.[15] Section 514 of the URAA restores copyright protection in the United States to foreign works that fell into the American public domain because of "noncompliance with formalities,"[16] "lack of subject matter protection in the case of sound recordings fixed before February 15, 1972,"[17] and "lack of national eligibility."[18] The restoration of copyright to works previously in the public domain poses a number of practical problems having to do with "reliance parties." Reliance parties are those who have come to rely on, and possibly even build a business around, foreign works in the public domain staying in the public domain.[19]

The statute strikes a balance between the needs of these reliance parties and the protection afforded to foreign authors. First, in order for the remedies of the copyright act to be effective against reliance parties, the owner of the restored copyright has to provide notice to the alleged infringer: either constructively, by publishing a notice in the Federal Register, or actually, by contacting the alleged infringer directly.[20] Second, damages accrue only for acts of infringement occurring twelve months after notice has been served.[21] Third, if a reliance party made a derivative work[22] of a subsequently restored copyrighted work while it was in the

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15. 19 U.S.C. § 3511 (2000).

16. The Act specifically mentions "failure of renewal," "lack of proper notice," and "failure to comply with any manufacturing requirements" as formalities. Uruguay Round Agreements Act § 514(h)(6)(C)(i), 17 U.S.C. § 104A(h)(6)(C)(i) (2000).

17. 17 U.S.C. § 104A(h)(6)(C)(ii). United States copyright law did not protect sound recordings until the Sound Recordings Act of 1971, Pub. L. 92-140, 85 Stat. 391 (amended 1976).

18. 17 U.S.C. § 104A(h)(6)(C)(iii). The United States does not automatically give copyright protection to the works of foreign authors, but today United States copyright protection extends to all members of the WTO. *See* 17 U.S.C. § 104 (2000); Copyright Act of 1976, Pub. L. 94-553, 90 Stat. 2541, 2545 (codified as amended in scattered sections of 17 U.S.C.); Berne Convention Implementation Act of 1988, Pub. L. 100-568, 102 Stat. 2853 (codified as amended in scattered sections of 17 U.S.C.); Digital Millennium Copyright Act of 1998, Pub. L. 105-304, 112 Stat. 2860 (codified as amended 17 U.S.C. §§ 512, 1201-05, 1301-22; 28 U.S.C. § 4001 (2000)).

19. *See* Brief for Plaintiffs-Appellants at 12-20, Golan v. Gonzales, 501 F.3d 1179 (10th Cir. 2007) (No. 05-1259) (detailing the harms caused to the plaintiffs by the copyright restoration provision).

20. 17 U.S.C. § 104A(d)(2).

21. *Id.*

22. *See* 17 U.S.C. § 106 (2000 & Supp. II 2002). These are works that do not copy verbatim from the protected work, but take protected elements from it and incorporate them into a new work. *See* Metro-Goldwyn-Mayer, Inc. v. Am. Honda Motor, Co., 900 F.

public domain, then the creator of the derivative work is immune from an injunction ordering cessation of the infringing activity, but must pay a "reasonable royalty" to continue to infringe the copyright.[23]

In addition to the restoration provision, the URAA contained two provisions prohibiting "bootlegging," which is the unauthorized fixation (e.g. by a videorecorder or audiorecorder) of a live musical performance.[24] Federal copyright law did not previously protect live performances because they are not "fixed" works under 17 U.S.C. § 101,[25] and fixation is a requirement of copyright protection.[26] Together, the URAA provisions provide for both criminal and civil penalties.[27] The act is retroactive in the sense that it prohibits the sale of bootlegs even if those bootlegs were made before the act was passed.[28] Furthermore, the Act contains no analogue to section 107 in the Copyright Act, which codifies the doctrine of "fair use."[29] Thus, even a short clip of a musical performance for the purposes of news, commentary, or parody would be prohibited under the Act if that short clip were procured without the performer's permission. Because, as discussed below,[30] the doctrine of fair use is a "free speech safe-

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Supp. 1287, 1298 (1995) (holding that the defendant's advertisement infringed on the James Bond series of movies because it used protected elements of the James Bond series in a new context).

23. The parties may either agree on a reasonable amount, or the copyright owner may sue the infringer to determine the amount. 17 U.S.C. § 104A(d)(3)(B).

24. Uruguay Round Agreements Act §§ 512-13, 17 U.S.C. § 1101 and 18 U.S.C. § 2319A (2000).

25. 17 U.S.C. § 101 (2000 & Supp. V 2005). The statute provides:

> A work is "fixed" in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. A work consisting of sounds, images, or both, that are being transmitted, is "fixed" for purposes of this title if a fixation of the work is being made simultaneously with its transmission.

Id.

26. *Id.* § 102(a) ("Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression . . . .").

27. 17 U.S.C. § 1101; 18 U.S.C. § 2319A.

28. *Id.*; *see also* KISS Catalog v. Passport Int'l Prods., 350 F. Supp. 2d 823, 829 (C.D. Cal. 2004), *rev'd on other grounds*, 405 F. Supp. 2d 1169 (C.D. Cal. 2005) (holding that the civil anti-bootlegging provision applies to works fixed before the enactment of the statute).

29. *See* 17 U.S.C. § 1101; 18 U.S.C. § 2319A.

30. *See infra* Section II.B.

guard," the lack of a fair use exception brings the anti-bootlegging provisions into conflict with the First Amendment.

B. The Copyright Clause

The Copyright Clause reads, "The Congress shall have power to . . . promote the Progress of Science and the useful Arts, by securing for limited Times to Authors . . . the exclusive Right to their . . . Writings."[31] The preamble, the "limited times" provision, and the restriction that rights can only be granted to "Authors" for their "Writings," all limit Congress's power to act under the Copyright Clause.

The preamble to the Copyright Clause requires that Congress only use copyright laws to "promote progress" in the arts and sciences.[32] This is usually thought of as a bargain between the public and the author: the author receives exclusive rights to his or her works and the public benefits from an enriched public domain.[33] Courts defer substantially to Congress as to the manner in which copyright laws fulfill that goal.[34] The Court in *Eldred v. Ashcroft* noted "it is generally for Congress, not the courts, to decide how best to pursue the Copyright Clause's objectives."[35]

The Copyright Clause also limits Congress by stipulating that Congress can only protect works for "limited times." This provision ensures that after a period of exclusive ownership, during which the author can reap the benefits of monopoly pricing, the work will fall into the public domain.[36] The Supreme Court has strongly implied that perpetual copyright protection would be unconstitutional.[37] However, the *Eldred* Court gave Congress wide latitude to determine the proper duration of copyright protection.[38] Any length of time that Congress settles on fulfills the requirements of the Copyright Clause, so long as it rationally relates to the purpose of copyright, which is to promote progress in the arts.[39]

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31. U.S. CONST. art. I, § 8, cl. 8.

32. Graham v. John Deere Co., 383 U.S. 1, 5 (1966).

33. *See* Paul J. Heald & Suzanna Sherry, Implied Limits on the Legislative Power: The Intellectual Property Clause as an Absolute Constraint on Congress, 2000 U. ILL. L. REV. 1119, 1154 (2000).

34. Eldred v. Ashcroft, 537 U.S. 186, 212 (2003) (upholding the addition of twenty years to the duration of copyright for both works then protected and works to be created).

35. *Id.*

36. Heald & Sherry, *supra* note 33, at 1162-63, 1165-66.

37. *See Eldred*, 537 U.S. at 199 (citing a definition of the word "limited" meaning "restricted in extent, number, or duration").

38. *Id.*

39. *See id.* at 213.

The Copyright Clause also requires that copyright laws only give exclusive rights to "authors" for their "writings." This requirement manifests as two concrete limitations: works must (1) have a "modicum of originality" to be eligible for copyright protection,[40] and (2) be fixed in a tangible medium of expression.[41]

The originality requirement excludes any facts or previously produced expressions from copyright protection because they do not originate with the author.[42] For example, copyright does not protect the telephone numbers in a phonebook.[43] Unfortunately, the line between protectable "original" works and unprotectable "facts" can be unclear.[44] Courts have extended copyright protection, for instance, to average price estimates published in appraisal manuals.[45] Average price estimates are fact-like because they describe the world: the average price that a 1995 Ford Taurus is selling for is a measurable fact about the world. They are also akin to original expression because such works necessarily involve the estimates and judgments of the authors and they do not reflect the world with 100% accuracy. Exactly how much uncertainty and judgment is required before a fact becomes expression is unclear.

Like facts, intangible works are not copyrightable. Congress has included a requirement in every copyright law that copyrighted works be fixed in some tangible medium.[46] Because of this requirement, no court has ever explicitly ruled on the issue of whether the word "Writings" in the Copyright Clause requires tangibility or "fixation" for works to be constitutionally eligible for copyright protection.[47]

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40. Feist Publ'ns., Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 346, 348 (1991).

41. *See* 17 U.S.C. § 102 (2000) (requiring "fixation" for a work to be copyright eligible); *cf.* Goldstein v. California, 412 U.S. 546, 561 (1973) ("[A]lthough the word 'writings' might be limited to script or printed material, it may be interpreted to include any physical rendering of the fruits of creative intellectual or aesthetic labor."); United States v. Moghadam, 175 F.3d 1269, 1274 (11th Cir. 1999) (assuming arguendo that the Copyright Clause requires a copyrightable work to be tangible).

42. *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884).

43. *Feist*, 499 U.S. at 348.

44. *See generally* Justin Hughes, *Created Facts and the Flawed Ontology of Copyright Law*, 83 NOTRE DAME L. REV. 43 (2007).

45. CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc., 44 F.3d 61 (2d Cir. 1994); *see also* CDN Inc. v. Kapes, 197 F.3d 1256 (9th Cir. 1999).

46. *See* Copyright Act of 1790, ch. 15, 1 Stat. 124; Copyright Act of 1909, ch. 320, 35 Stat. 1075 (repealed 1976); Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended in scattered sections of 17 U.S.C.); 17 U.S.C. § 102 (2000).

47. *See* 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 1.08(C)(2) (2007).

C. The Commerce Clause

Even where a copyright or "copyright-like"[48] law violates some limitation found in the Copyright Clause, there is the possibility that the Commerce Clause may nonetheless authorize the law. The Commerce Clause gives Congress the power to regulate the channels and instrumentalities of, and all activities that substantially affect, interstate commerce.[49] To uphold a law as authorized by the Commerce Clause, the government need only show that the challenged law rationally regulates activities classifiable as commerce, and that the means selected have a reasonable connection to the ends asserted.[50]

If there were no Copyright Clause, the Commerce Clause would likely authorize all of modern copyright law. Ownership of expression, duration of protection, and exclusive rights granted substantially affect interstate commerce through industries such as publishing, recording, film, and video games. Moreover, the URAA regulates international trade, which is substantially affected by the copyright restoration law and anti-bootlegging provisions.[51] The copyright restoration law, after all, only restores copyright to foreign works, and so directly regulates the trade with foreign nations authorized by the Commerce Clause.[52] While the anti-bootlegging provisions do prohibit purely intrastate bootlegging, this regulation is permissible under the Commerce Clause because local bootlegging nevertheless affects interstate commerce though its impact on the na-

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48. Some courts used the term "copyright-like" to describe the anti-bootlegging provisions. *See* United States v. Martignon, 492 F.3d 140, 145 (2d Cir. 2007); United States v. Moghadam, 175 F.3d 1269, 1280 (11th Cir. 1999); KISS Catalog v. Passport Int'l Prods., 405 F. Supp. 2d 1169, 1175 (C.D. Cal. 2005). This stems from the facts that (1) the anti-bootlegging provisions do not protect all of the section 106 rights of copyright (e.g. the making of derivative works) and (2) the anti-bootlegging provisions only protect intangible works whereas a work must be fixed in a tangible medium of expression in order to be copyrighted. Some courts held that because the anti-bootlegging provisions were "copyright-like" they had to meet the requirements of the Copyright Clause, and other courts held that because the provisions were merely "copyright-like" they were immune from those requirements. *Compare* United States v. Martignon, 346 F. Supp. 2d 413, 422, 428 (S.D.N.Y. 2004) *with* KISS Catalog v. Passport Int'l Prods, 405 F. Supp. 1169, 1175 (C.D. Cal. 2005). This Comment uses the word "copyright-like" to refer to a law that gives legal protection to expression, such as the anti-bootlegging provisions, but that is arguably immune from the requirements of the Copyright Clause.

49. United States v. Lopez, 514 U.S. 549, 558-59 (1995).

50. Fed. Energy Regulatory Comm'n v. Mississippi, 456 U.S. 742, 754 (1982).

51. *See Moghadam*, 175 F.3d at 1276.

52. *See* 17 U.S.C. § 104A (2000); *see also* U.S. CONST. art. 1, § 8, cl. 3.

tional recording industry.[53] Thus, courts have upheld the anti-bootlegging provisions under the Commerce Clause.[54]

It is an open question, however, whether the Copyright Clause impliedly limits the broad powers of the Commerce Clause. No court has held that when Congress enacts a copyright or "copyright-like" law that is authorized by the Commerce Clause it is bound by all of the limitations in the Copyright Clause. The Eleventh Circuit Court of Appeals has held that Congress may not pass a law that is "fundamentally inconsistent" with the limitations in the Copyright Clause.[55] Nevertheless, every time a court purports to apply this test, the constitutional challenge brought under the Copyright Clause has failed.[56] It appears, therefore, that the Copyright Clause is essentially toothless and Congress may circumvent many of its bans on copyright-like protections because it can authorize them under the Commerce Clause.

D. The First Amendment

Where the Copyright Clause and the Commerce Clause are positive grants of Congressional power to enact specific types of legislation, the First Amendment is a general limitation on the scope of Congress's power. Unlike Copyright Clause and Commerce Clause jurisprudence, where the only standard of review is rationality review, in First Amendment jurisprudence courts utilize many different levels of review.

Courts apply a highly deferential standard of review to regulations that only incidentally burden speech. If speech is more than incidentally burdened, then courts apply varying standards of review depending on whether the regulation is content-based. If the regulation suppresses a particular kind of speech because of its viewpoint, courts apply a strict scrutiny standard. If the regulation is content-neutral, courts apply a more lenient standard.

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53. *See Moghadam*, 175 F.3d at 1276-77.

54. *See id.*; United States v. Martignon, 492 F.3d 140, 152-53 (2d Cir. 2007); KISS Catalog, Ltd. v. Passport Int'l Prods., 405 F. Supp. 2d 1169, 1173 (C.D. Cal. 2005), *rev'g*, 350 F. Supp. 2d 823 (C.D. Cal. 2004).

55. *Moghadam*, 175 F.3d at 1280.

56. *See Moghadam*, 175 F.3d at 1281; *KISS Catalog*, 405 F. Supp. 2d at 1173; United States v. Elcom, 203 F. Supp. 2d 1111, 1141 (N.D. Cal. 2002); *cf.* United States v. Martignon, 346 F. Supp. 2d 413 (S.D.N.Y. 2004), *rev'd*, 492 F.3d 140 (2d Cir. 2007); KISS Catalog, Ltd. v. Passport Int'l Prods., 350 F. Supp. 2d 823 (C.D. Cal. 2004), *rev'd*, 405 F. Supp. 2d 1169 (C.D. Cal. 2005).

1. *Rational Review*

Some regulations incidentally burden speech, or burden communicative activities that are not considered "speech" for the purposes of the First Amendment.[57] Incidental burdens of speech are those regulations that interfere with speech only minimally,[58] or as part of a general regulatory scheme, such as taxation.[59] Examples of communicative activities considered to be "non-speech" include: obscenity,[60] speech specifically calculated or designed to provoke a fight,[61] and the advocacy of drug use in a secondary school by a student.[62] To the extent they review them at all, courts review regulations incidentally burdening speech, or burdening "non-speech" activities, under a highly deferential rational basis standard.[63]

2. *Strict Scrutiny*

When the government regulates speech based on its content, courts employ a strict scrutiny review.[64] Strict scrutiny presumes the statute at issue to be invalid and requires the government to prove that the law is necessary to serve a compelling government interest.[65] Courts employ the

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57. *See, e.g.*, Morse v. Frederick, 127 S. Ct. 2618 (2007) (holding that pro-drug messages delivered by students in public schools are not entitled to First Amendment protection); Minneapolis Star & Tribune Co. v. Minn. Comm'r of Revenue, 460 U.S. 575, 581 (1983) ("It is beyond dispute that the States and the Federal Government can subject newspapers to generally applicable economic regulations without creating constitutional problems."); Miller v. California, 413 U.S. 15, 23 (1973) ("[O]bscene material is unprotected by the First Amendment."); Chaplinsky v. New Hampshire, 315 U.S. 568, 574 (1942) (holding that a statute banning "fighting words" did not harm First Amendment interests).

58. *See* Rumsfeld v. Forum for Academic & Institutional Rights, 547 U.S. 47, 64 (2006) (holding that incidental burdens, such as the mandatory posting of notice fliers for the purposes of military recruitment, did not affect a college's speech).

59. *See* Grosjean v. Am. Press Co., 297 U.S. 233, 250 (1936) (holding newspapers are not immune from taxation schemes which do not target them uniquely).

60. *Miller*, 413 U.S. at 23.

61. *Chaplinsky*, 315 U.S. at 574.

62. *Morse*, 127 S. Ct. at 2629.

63. Geoffrey R. Stone, *Content-Neutral Restrictions*, 54 U. CHI. L. REV. 46, 48-50 (1987).

64. *See* R.A.V. v. St. Paul, 505 U.S. 377, 395-96 (1992) (holding that an ordinance which banned a subclass of fighting words was invalid because it discriminated between fighting words on the basis of viewpoint).

65. *See id.* Even though the strict scrutiny standard is the highest bar set against statutes in constitutional law, between 1990 and 2003, 30 percent of all laws subjected to strict scrutiny survived the application. Adam Winkler, *Fatal in Theory and Strict in Fact: An Empirical Analysis of Strict Scrutiny in the Federal Courts*, 59 VAND. L. REV.

strict scrutiny standard to review laws that exempt some subjects or ideas from broadly applicable prohibitions[66] or single out certain subjects or ideas for especially burdensome treatment.[67] To pass strict First Amendment scrutiny, a law must not burden any more speech than necessary to serve the government interest.[68] That is, if there is any means to accomplish the same end while suppressing less speech, the government is obliged to use that least restrictive means.[69]

3. *Intermediate Scrutiny*

Strict scrutiny does not apply to content neutral suppressions of speech.[70] The "intermediate scrutiny"[71] standard applicable in these cases requires that the challenged law be narrowly tailored to serve a substantial government interest.[72] The precise formulation of this standard is variable. Courts have applied intermediate scrutiny with varying degrees of rigor and without a clear explanation of what determines the differences.[73]

Content neutral regulations of speech are designed to regulate the conduct that is sometimes concomitant with a particular expression of an idea. The regulations must not serve a government interest in suppressing that idea as such.[74] For instance, a law attaching criminal penalties to a protest

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793, 810, 814 (2006). Where religious liberty cases are removed from the data set, the survival rate drops to 24 percent. *Id.* at 813.

66. Police Dep't of Chicago v. Mosley, 408 U.S. 92, 101 (1972) (holding that the exclusion of labor picketing from an anti-picketing ordinance was impermissible content discrimination).

67. *R.A.V.*, 505 U.S. at 367, 395.

68. Ashcroft v. ACLU, 542 U.S. 656, 666 (2004) (holding that to pass First Amendment strict scrutiny the chosen means of serving the government's interest must be the "least restrictive means among available, effective alternatives").

69. *Id.*

70. *See* United States v. O'Brien, 391 U.S. 367, 376-77 (1968) (holding that a law suppressing speech is justified as long as "it furthers an important or substantial governmental interest; if the governmental interest is unrelated to the suppression of free expression; and if the incidental restriction on alleged *First Amendment* freedoms is no greater than is essential to the furtherance of that interest.").

71. *See* Watchtower Bible & Tract Soc'y of N.Y., Inc. v. Vill. of Stratton, 536 U.S. 150, 175 (2002) (Rehnquist, C.J., dissenting).

72. *Id.* (citing Ward v. Rock Against Racism, 491 U.S. 781, 791 (1989)).

73. Stone, *supra* note 63, at 48-50; *see also* Neil Weinstock Netanel, *Locating Copyright Within the First Amendment Skein*, 54 STAN. L. REV. 1, 35-36 (2001).

74. Turner Broad. Sys. v. FCC (*Turner II*), 520 U.S. 180, 189 (1997) ("A content neutral regulation will be sustained under the First Amendment if it advances important government interests unrelated to the suppression of free speech . . ."); *see also O'Brien*, 391 U.S. at 376-77.

of the draft would be subject to strict scrutiny because the only government interest served would be the interest in silencing protests. A law prohibiting the burning of a draft card, however, even in the context of a protest, is subject to intermediate scrutiny, because such a law would be justified by the government interest in a smooth functioning draft system.[75]

One common form of content neutral regulation that is subject to intermediate scrutiny is the "time, place, and manner" restriction.[76] These regulations erect administrative barriers to speech (such as requiring parade organizers to obtain a government permit to operate) while "leav[ing] open ample alternative channels for communication of the information."[77] Despite the possibly trivial burden time, place, and manner restrictions place on speech, they still must "serve a significant government interest"[78] although they need not be the least restrictive means to serve that interest.[79]

Content neutral regulations of speech subject to intermediate scrutiny do, however, need to avoid burdening substantially more speech than necessary to achieve the government's goals.[80] In a First Amendment challenge, courts consider the law's intended and unintended "chilling" of speech.[81] Thus a law which is too vague for a reasonable person to anticipate whether her activities put her at risk of legal sanction would violate the First Amendment to the extent that protected speech might be discouraged through a desire to comply with the law.[82]

Intermediate scrutiny also requires that Congress provide some factual basis for believing that the government interest is significant and that the chosen means substantially relates to it.[83] The factual basis should be evident from the record before Congress.[84]

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75. *See O'Brien*, 391 U.S. at 379-80.

76. *See Rock Against Racism*, 491 U.S. at 798-99 (holding that a city ordinance requiring performers in a public park to use publicly provided sound mixing equipment was constitutional).

77. Va. State Bd. of Pharmacy v. Va. Citizens Consumer Council, 425 U.S. 748, 771 (1976).

78. *Id.*

79. *Rock Against Racism*, 491 U.S. at 798-99.

80. *Id.*

81. *See* Lamont v. Postmaster General, 381 U.S. 301, 307 (1965) (striking down a law requiring addressees to explicitly ask the post office to deliver communist propaganda); *see also* Freedman v. Maryland, 380 U.S. 51, 60-61 (1965).

82. *See* Coates v. Cincinnati, 402 U.S. 611, 614 (1971) (striking down a law prohibiting "annoying" conduct).

83. Turner Broad. Sys. v. FCC (*Turner II*), 520 U.S. 180, 211 (1997).

84. *Id.*

II. COPYRIGHT AND THE FIRST AMENDMENT

Courts have generally held that copyright law is consistent with the First Amendment and have even suggested that no First Amendment review of copyright laws is necessary.[85] This is despite the fact that copyright laws unquestionably suppress speech, because copyright explicitly prohibits the free expression of copyrighted materials. Furthermore, because it is the content of a work (its originality) that determines whether a work is copyrightable and it is the content of the challenged work (its similarity to the copyrighted work) that determines copyright infringement, this suppression is arguably content discriminatory.[86] The argument that copyright law does not require First Amendment review is that the copyright laws strike a "definitional balance" between the expressive interests of authors and those of prospective copiers.[87] The author needs financial incentives in order to create expressive works; if the law protects an infringer too liberally the author will be silenced. The balance predominantly manifests itself in the doctrine of "fair use" and in the "idea/expression dichotomy."[88] This Section will briefly explain these First Amendment "safety valves" in order to explore the balance of expressive liberties versus protection found in the copyright laws. It will then examine the standard of First Amendment review applicable to copyright statutes.

A. The "Idea/Expression Dichotomy"

Section 102(b) of the Copyright Act provides that no "idea" is protectable under copyright law.[89] This means that copyright does not protect the general themes that a copyrighted work possesses, only the expression of those themes.[90] In addition, when a particular idea can only be expressed in a limited number of ways, the expression is "merged" with the idea, and the expression of that idea is not copyrightable.[91] For example, there is no protection for a story about a Catholic family and a Jewish family that get into a fight, because that basic plot element is too abstract for copyright protection.[92] Copyright does protect, however, the boxer named Rocky

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85. *See* Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 559-60 (1985).

86. *See infra* Section II.E.4.

87. *See* Melville B. Nimmer, *Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?*, 17 UCLA L. REV. 1180, 1192 (1970).

88. *See* Eldred v. Ashcroft, 537 U.S. 186, 219-20 (2003).

89. 17 U.S.C. § 102(b) (2000).

90. Baker v. Seldon, 101 U.S. 99, 104 (1880); Nichols v. Universal Pictures Corp., 45 F.2d 119, 121-22 (2d Cir. 1930).

91. Morrissey v. Procter & Gamble Co., 379 F.2d 675, 678-79 (1st Cir. 1967).

92. *Nichols*, 45 F.2d at 121-22.

Balboa who has a girlfriend named Adrian, a trainer named Mitt, and who lost to another boxer named Apollo.[93]

The idea/expression dichotomy is not explicitly required by the Constitution.[94] Rather, the Court has held that the "idea/expression dichotomy" is a "First Amendment accommodation"[95] that strikes a "definitional balance between the First Amendment and the Copyright Act."[96] That is, there is a First Amendment right to express any particular idea even if someone else has said that idea first.

It should be noted, however, that classifying something as an "idea" or as "expression" is a difficult exercise.[97] Courts have extended copyright protection to a "suave hero" in a tuxedo fighting grotesque villains because of its resemblance to James Bond.[98] Copyright has also protected the line "Love is a Wonderful Thing" sung to a Rhythm and Blues style of music,[99] even though the idea that love is a wonderful thing is certainly unprotected by copyright and no individual could ever have a copyright on Rhythm and Blues. While copying verbatim the line "love is a wonderful thing" is arguably copyright infringement, it is difficult to say that love is a wonderful thing in any other way. "Love is a great thing" or "love is a marvelous thing" is not the same idea as "love is a wonderful thing."

B. The Doctrine of Fair Use

Like the idea/expression dichotomy, the doctrine of fair use is not explicitly required by the Constitution. It is an equitable doctrine, first developed in the United States by Justice Story,[100] that has since been codified[101] and elevated by the Court in *Eldred* to what appears to be a First

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93. *See* Anderson v. Stallone, No. 87-0592 WDKGX, 1989 WL 206431, at *1166-67 (C.D. Cal. Apr. 25, 1989).

94. In fact, Article 1, section 8, clause 8 authorizes patent law, which quite explicitly grants intellectual property rights to ideas. *See* 35 U.S.C. § 101 (2000) (defining the scope of patentable subject matter).

95. Eldred v. Ashcroft, 537 U.S. 186, 219 (2003).

96. Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 556 (1985) (citation omitted).

97. *See* 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT §13.03 (2007).

98. Metro-Goldwyn-Mayer, Inc. v. Am. Honda Motor, Co., 900 F. Supp. 1287 (C.D. Cal. 1995).

99. Three Boys Music Corp. v. Michael Bolton, 212 F.3d 477, 487 (9th Cir. 2000).

100. *See* Folsom v. Marsh, 9 F. Cas. 342 (D. Mass. 1841).

101. 17 U.S.C. § 107 (2000). The codification of fair use gives four nonexclusive factors that courts use to determine if a particular use is fair:

> (1) the purpose and character of the use . . . ; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in

Amendment requirement.[102] Fair use is an affirmative defense; the alleged infringer bears the burden to prove that her use was fair.[103]

Fair use "permits and requires courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster."[104] The statute codifying the doctrine specifically mentions "criticism, comment, news reporting, teaching . . . , scholarship [and] research" as uses encouraged by the doctrine.[105] The fair use doctrine has been criticized for its unpredictability[106] and some commentators contend that the doctrine does not necessarily protect uses of copyrighted material that minimally impact the copyright holder but are essential to the alleged infringer's expression.[107]

C. The Permanent Public Domain

While courts have cited the fair use doctrine and the idea/expression dichotomy as mechanisms that make copyright laws consistent with the First Amendment, the public domain's relationship to the First Amendment has been relatively ignored.[108] It is logical to suppose that a permanent public domain protects free speech rights because it enables all people to freely make use of expression that has fallen into the public domain. There is some Supreme Court precedent emphasizing the importance of a large body of public domain works that the public can exploit.[109] A permanent public domain, however, has not been elevated, like

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> relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.

Id.

102. Eldred v. Ashcroft, 537 U.S. 186, 220-21 (2003).

103. *Campbell*, 510 U.S. at 590 (citation omitted).

104. *Id.* at 577 (internal quotation marks and formatting omitted).

105. 17 U.S.C. § 107 (2000).

106. William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659, 1694-95 (1988); Netanel, *supra* note 73, at 21.

107. *See* Mark A. Lemley & Eugene Volokh, *Freedom of Speech and Injunctions in Intellectual Property Cases*, 48 DUKE L.J. 147, 166 (1998); Rebecca Tushnet, *Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It*, 114 YALE L.J. 535, 544 (2004) (noting that the fair use doctrine is difficult to reconcile with the derivative works right).

108. Diane Leenheer Zimmerman, *Is There a Right to Have Something to Say? One View of the Public Domain*, 73 FORDHAM L. REV. 297, 299-300 (2004).

109. *See* Dastar Corp. v. Twentieth Century Fox Film Corp, 539 U.S. 23, 34 (2003); Feist Publ'ns., Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 354 (1991).

the fair use doctrine or the idea/expression dichotomy, to a place of constitutional significance.

D. The Appropriate Standard of First Amendment Scrutiny of Copyright Laws

In part because of the protections of the fair use doctrine and the idea/expression dichotomy, before *Eldred*, courts consistently held that copyright laws do not tread on free speech rights at all, and thus do not require First Amendment scrutiny.[110] Courts and commentators have argued that copyright's unique position in encouraging the creation of new expression itself serves a First Amendment interest.[111] Courts, the logic goes, should therefore be deferential to the congressional "scheme" of copyright protection.[112]

A congressional balance struck between incentive and access, however, does not necessarily exempt suppression of speech from heightened scrutiny in other contexts. In *Turner II* the Court subjected the "must-carry" laws[113] to intermediate scrutiny, despite the fact that they were a congressional attempt to balance incentives and access. The "must carry laws" required cable companies to carry local over-air broadcast stations in order to ensure that broadcast television would not be driven out of business by cable television.[114] Turner Broadcasting System argued that its First Amendment rights were violated because it was being forced to carry stations it did not want to—in effect it was being forced to speak.[115] Four of the five justices upholding the law relied on two independent ra-

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110. *See* New York Times Co. v. United States, 403 U.S. 713, 726 n.* (1971) (Brennan, J., concurring) (arguing copyright laws are irrelevant to the First Amendment because copyright protects only the form of the expression and not the idea expressed); Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 559 (1985) (citing *NewYork Times*, 403 U.S. at 726 (Brennan, J., concurring)) ("Copyright laws are not restrictions on freedom of speech as copyright protects only form of expression and not the ideas expressed.").

111. *See* Erwin Chemerinsky, *Balancing Copyright Protections and Freedom of Speech: Why the Copyright Term Extension Act is Unconstitutional*, 36 LOY. L.A. L. REV. 83, 83 (2002); Nimmer, supra note 87, at 1186-87; *see also* Harper & Row, 471 U.S. at 558 ("The copyright laws serve as the engine of free expression. . . .") (internal quotation marks omitted).

112. Harper & Row, 471 U.S. at 545-56.

113. *See* Cable Television Consumer Protection and Competition Act of 1992, Pub. L. 102-385, 106 Stat. 1460 (codified as amended in scattered sections of 47 U.S.C.).

114. Turner Broad. Sys. v. FCC (*Turner II*), 520 U.S. 180, 187-88 (1997); *see also* Turner Broad. System v. FCC (*Turner I*), 512 U.S. 622 (1994) (holding that the must-carry provisions were content-neutral regulations of speech and subject to intermediate scrutiny).

115. *Turner I*, 512 U.S. at 653.

tionales: (1) the must-carry provisions had a pro-competitive effect in that they prevented monopolization by the cable companies in the local broadcast markets[116] and (2) the must-carry provisions assured access to information by the public since "[b]roadcast television is an important source of information to many Americans."[117] Justice Breyer, the fifth vote, did not join the opinion with respect to the pro-competitive rationale. Rather, Justice Breyer's concurrence held that the must carry law's pro-expression effects were sufficient to meet intermediate scrutiny.[118]

In *Turner II*, heightened First Amendment review applied even though Congress had balanced the cable companies' First Amendment interests in editorial control against the public's interest in access to information. Therefore, the mere fact that the copyright laws balance pro-expression incentives against suppressions of speech cannot immunize the copyright laws from heightened review.[119]

The Supreme Court's latest major copyright decision, *Eldred v. Ashcroft*, seems to agree that the First Amendment is applicable to copyright laws,[120] with one important caveat: copyright laws are only subject to First Amendment review if they go outside of the "traditional contours" of copyright law.[121] The Court did not explicitly define the "traditional contours" but held that the law at issue in *Eldred* did not breach them.[122]

Supposing that a copyright law does breach the traditional contours of copyright law, what level of First Amendment scrutiny would be appropriate? At first blush, copyright laws would appear to be subject to either strict or intermediate scrutiny because they are more than "incidental" burdens on speech.[123] Since copyright law clearly burdens speech (in that the speech in a copyrighted work can only be utilized by the copyright owner or a licensee)[124] the next inquiry would focus on whether copyright law is content discriminatory or content neutral in order to determine whether intermediate scrutiny or strict scrutiny is appropriate.

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116. *Turner II*, 520 U.S. at 191.
117. *Id.* at 194.
118. *Id.* at 226 (Breyer, J., concurring).
119. *See* Netenal, *supra* note 73, at 42.
120. Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).
121. *Id.*
122. *Id.* In *Eldred*, the Court upheld the Copyright Term Extension Act ("CTEA"), which added twenty years to the duration of copyright for all works then under copyright as well as all works to be created. Sonny Bono Copyright Term Extension Act, 17 U.S.C. §§ 108, 203, 301-304 (2000 & Supp. V 2005).
123. *See generally* Nimmer, *supra* note 87.
124. *See* 17 U.S.C. § 106 (2000 & Supp. II 2002).

While copyright laws in the aggregate, however, certainly impose more than incidental burdens on speech, individual amendments to the copyright laws may or may not cause substantial harm to expressive interests above and beyond that of copyright law in general. Because the First Amendment review contemplated by *Eldred* is narrow, copyright laws that go outside of the traditional contours of copyright law—but that do not suppress more speech than copyright law generally—should be judged on a rational basis standard.

1. Strict Scrutiny

It can be argued that copyright law ought to be subject to strict scrutiny because (1) it is the content of the challenged speech that determines whether copyright has been violated,[125] and (2) copyright discriminates in favor of new or original expression. Copyright first looks to the content of the speaker's speech to determine if it is substantially similar to any copyrighted work. If so, copyright suppresses that speech. Because this analysis is dependent on the content of speech suppressed, copyright arguably discriminates on the basis of content. Moreover, copyrights themselves are content discriminatory because copyright looks to the content of a work to determine its eligibility for copyright protection. Databases like phonebooks are not copyrightable but appraisal manuals are; a blank canvas is not copyrightable but a Jackson Pollock[126] painting is. Whether the law burdens speech, therefore, is dependent on how the speaker wants to copy that speech (similar enough to be infringing in the copyright or not) and the content of the copied speech (copyrightable or not) so strict scrutiny should apply.[127]

This argument, however, is specious because while copyright law does reference the content of both the protected speech and the allegedly infringing speech, copyright law does not give preferential treatment to any particular point of view or any particular subject matter.[128] All original expression is copyrightable regardless of the message, and all infringing works are suppressible, regardless of the point of view. Therefore, while copyright law is content *referential* it is not content *discriminatory*.

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125. *See* Lemley & Volokh, *supra* note 107, at 186 (arguing that copyright law is a content discriminatory burden on speech).

126. Some of Pollock's paintings are characterized by chaotic spattering of paint on canvas. Charles Lachman, *The Image Made by Chance in China and the West: Ink Wang Meets Jackson Pollock's Mother*, 74 ART BULL. 499, 501 (1992).

127. Lemley & Volokh, *supra* note 107, at 186.

128. Chemerinsky, *supra* note 111, at 93-94.

2. *Intermediate Scrutiny*

Copyright laws that impose substantial burdens on speech, therefore, should be subject to intermediate scrutiny.[129] What copyright laws really get at is the conduct that is concomitant with the expression of a particular idea, but not the idea itself.[130] That is, copyright laws target the unfair competition that would necessarily accompany, for example, publishing *Lavender Mist: No. 1* without a license from Mr. Pollack's estate.[131] Copyright does not, however, keep an individual from making her own distinct work using Pollack's unique method.[132] The content of the speaker's speech is irrelevant to the purpose of copyright law. The government merely wants the system of incentives for authors to disseminate original works to function smoothly. Therefore, copyright is not content discriminatory and intermediate scrutiny is more appropriate.

3. *Rational Basis*

Copyright laws that breach the traditional contours of copyright law, but that cause no more harm, or only incidental harms, to expressive interests when compared with copyright laws generally, should be subject to rational basis review. While the significant harm to expressive interests caused by copyright law would suggest that strict or intermediate scrutiny should apply, it is important to keep in mind that the First Amendment review contemplated by *Eldred* is a limited one. That is, copyright laws *are* categorically immune from First Amendment review *unless* they go outside of the traditional contours of copyright law.[133] Therefore, *Eldred* establishes a baseline level of harm to expression that is acceptable to the First Amendment.

Copyright law, as it is now formulated, chills a substantial amount of speech. As discussed above,[134] the idea/expression dichotomy is a very fuzzy line and it is difficult to predict whether a particular use of an idea similar to an idea embodied in a copyrighted work will be infringing or not.[135] Similarly, the doctrine of fair use has unpredictable outcomes.[136]

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129. Netanel, *supra* note 73, at 47-54; *see also* Chemerinsky, *supra* note 111, at 93.

130. *But see* Lemley & Volokh, *supra* note 107, at 166 (conceding that copyright when applied properly does not protect ideas, but that preliminary injunctions in copyright cases nonetheless violate the First Amendment because of the risk of error).

131. *See* Netanel, *supra* note 73, at 49.

132. *See* 17 U.S.C. § 102(b) (2000).

133. Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).

134. *See supra* Section II.A.

135. Tushnet, *supra* note 107, at 554.

136. *Id.*; *see also* Netanel, *supra* note 73, at 21.

These doctrines are the supposed safety-valves that keep copyright law from infringing the First Amendment,[137] but because their application is so difficult to predict, and, according to some, incoherent,[138] it is almost certain that they discourage the creation of some speech that would be protected.[139] But the First Amendment does not recognize this harm, according to the *Eldred* Court.[140] Instead of examining whether this limitation to the First Amendment review of copyright is justifiable or desirable,[141] this Comment will work within the *Eldred* framework to outline how the First Amendment should be applied to copyright laws going forward.

The *Eldred* framework would suggest that the level of review applied to a copyright law should be related to the extent the law deviates from the traditional contours of copyright. If a copyright law within the traditional contours does *no harm* to First Amendment interests, it is reasonable to suppose that slight breaches of the traditional contours might do *slight harm* to First Amendment interests. *Eldred* instructs courts not to consider harm caused by copyright law generally. For example, the copyright renewal provisions of the URAA renew the copyright in certain foreign works. They incorporate the harm caused by the ambiguity of the fair use doctrine and the idea/expression dichotomy, because all copyrights cause this harm. Even if, as the *Golan* court held, the renewal provisions are outside of the traditional contours[142] it would be incorrect to consider the harm caused by all copyrights in the First Amendment calculus because under *Eldred* that harm is not cognizable by the First Amendment.

III. "TRADITIONAL CONTOURS OF COPYRIGHT LAW"

Because the traditional contours of copyright law control whether heightened First Amendment review applies, defining the traditional contours of copyright law is necessary. Three hypotheses that define the traditional contours have emerged: (A) that the powers given to Congress by

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137. *Eldred*, 537 U.S. at 221.

138. William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1661, 1694 (1988).

139. *See* Tushnet, *supra* note 135, at 545.

140. *See* Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).

141. This ground has been covered extensively by others. *See generally* David E. Shipley, *Congressional Authority Over Intellectual Property Policy After* Eldred v. Ashcroft*: Deference, Empty Limitations, and Risks to the Public Domain*, 70 ALB. L. REV. 1255 (2007); Symposium, *Constitutional Challenges to Copyright*, 30 COLUM. J.L. & ARTS 337 (2007); Symposia, *The Constitutionality of the Copyright Extension: How Long is Too Long?*, 18 CARDOZO ARTS & ENT. L.J. 651 (2000).

142. Golan v. Gonzales, 501 F.3d 1179, 1189 (10th Cir. 2007).

the Copyright Clause define the traditional contours;[143] (B) that the doctrine of fair use and the idea/expression dichotomy was what the Court meant by "traditional contours";[144] and (C) that the traditional contours are determined by the historical practice from the first copyright act in 1790, and perhaps earlier, to the present day.[145] Once these three hypotheses are explained, this Comment will argue that hypothesis (C), which defines the contours by traditional practice, is preferable. This part will then apply each hypothesis to the restoration provision and the anti-bootlegging provisions.

A. The Copyright Clause Defines The Contours

The simplest formulation of the traditional contours of copyright law is that the contours encompass the whole power given to Congress by the Copyright Clause. In other words, Copyright Clause review replaces First Amendment scrutiny. The First Amendment and the Copyright Clause are only set "at cross-purposes" when the bounds of the Copyright Clause are exceeded because the First Amendment and the Copyright Clause work together to promote free expression.[146] Despite the hypothesis's logical simplicity, no court has so far explicitly adopted it.[147]

The most glaring objection to this definition is that it contradicts the plain meaning of the Court's language in *Eldred*, which stated that the First Amendment has relevance in copyright cases. If the traditional contours of copyright law encompassed the whole power given to Congress by the Copyright Clause, then any copyright law would necessarily pass First Amendment muster. But, the Court in *Eldred* rejected the proposition that copyright laws are categorically immune from heightened First Amendment scrutiny:[148] "We recognize that the D.C. Circuit spoke too broadly when it declared copyrights 'categorically immune from chal-

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143. *See Eldred*, 537 U.S. at 244-45 (Breyer, J., dissenting) (arguing that copyright laws are consistent with the First Amendment so long as they are within the bounds of the Copyright Clause); *see also* Posting of William Patry to Patry Copyright Blog, Golan's Copyright Lows, http:// williampatry.blogspot.com/2007/09/ golans-copyright-lows.html (Sept. 4, 2007).

144. *Cf.* Kahle v. Gonzales, 487 F.3d 697 (9th Cir. 2007) (holding that because neither fair use rights nor rights to ideas were narrowed First Amendment scrutiny need not be applied to an amendment to the Copyright Act).

145. *Golan*, 501 F.3d at 1189.

146. *See Eldred*, 537 U.S. at 244-245 (Breyer, J., dissenting); *see also* Posting of William Patry to Patry Copyright Blog, Golan's Copyright Lows, http:// williampatry.blogspot.com/2007/09/golans-copyright-lows.html (Sept. 4, 2007).

147. *See Golan*, 501 F.3d at 1186; Kahle v. Gonzales, 487 F.3d 697, 701 (9th Cir. 2007); Luck's Music Library v. Gonzales, 407 F.3d 1262 (D.C. Cir. 2005).

148. *Eldred*, 537 U.S. at 221.

lenges under the First Amendment.' . . . But when, as in this case, Congress has not altered the traditional contours of copyright protection, further First Amendment scrutiny is unnecessary."[149] It is possible that the Court could have been speaking loosely. Just because a law gives copyright protection to a work, does not mean that the law is a valid exercise of the powers in the Copyright Clause.[150] The court could have merely meant that the First Amendment challenge to copyright is encompassed within the Copyright Clause challenge, identifying the Copyright Clause as the "traditional contours." And because the *Eldred* Court held that the Copyright Term Extension Act was constitutional, both within the bounds of the Copyright Clause and the First Amendment, defining the traditional contours by the breadth of the Copyright Clause is at least consistent with the *Eldred* ruling.[151] Nonetheless this is a strained reading of the *Eldred* opinion, which considered the Copyright Clause and First Amendment challenges to the CTEA separately.[152]

A second objection to this line of reasoning is that it impermissibly collapses a highly deferential standard of review into a highly searching standard of review. That is, whether Congress has exceeded its powers under the Copyright Clause is judged according to the highly deferential rational basis standard.[153] Whether the Congress has impermissibly violated the First Amendment is judged on a potentially much more searching standard of review, depending on the character of the suppression.[154] Therefore, to hold that any copyright law within the bounds of the Copyright Clause is consistent with the First Amendment is to subject a whole slew of suppressions of speech to merely rational basis review. It would be akin to holding that because the must-carry provisions[155] substantially affect interstate commerce they are subject to only rational basis review.[156] In reality, they were subject to intermediate review in order to ensure that they did not burden substantially more speech than was necessary to achieve the government's ends.[157] The rational basis standard of review gives congress deference where deference is appropriate—when Congress reaches for more power to combat a Great Depression, or other national

149. *Id.* (internal citations omitted).
150. *See supra* Section I.B.
151. *Eldred*, 537 U.S. at 221.
152. *Id.* at 210-21.
153. *See supra* Section II.C.
154. *See supra* Section II.D.
155. *See supra* text accompanying note 113.
156. *Cf. Turner I*, 512 U.S. at 662 (holding that the must-carry provisions were subject to intermediate scrutiny).
157. *Id.*

crises, the rational basis standard keeps the courts from getting in the way.[158] The First Amendment is supposed to keep the government from infringing essential liberties.[159] Subjecting potential First Amendment violations caused by copyright laws merely to Copyright Clause review means upholding suppressions of speech upon a rational basis. Collapsing the First Amendment question into the Copyright Clause question impermissibly conflates the two standards.

B. Fair Use and The Idea/Expression Dichotomy Define the Contours

The second hypothesis to emerge in defining the "traditional contours of copyright law" is that the fair use doctrine and the idea/expression dichotomy are the whole of the contours. That is, as long as a copyright law does not protect "ideas" or "facts," and it allows an affirmative defense for some mildly harmful yet socially beneficial uses, the law is not subject to First Amendment review.

The Ninth Circuit used this hypothesis in *Kahle v. Gonzales*.[160] In *Kahle*, the court upheld the CTEA, as well as the Copyright Renewal Act of 1992 ("CRA") which made copyright renewal automatic.[161] In refuting the plaintiff's contention that the CTEA and the CRA altered the traditional contours of copyright law, the court explained, "[T]raditional First Amendment safeguards such as fair use and the idea/expression dichotomy are sufficient to vindicate the speech interests affected by the CRA and the CTEA," and thus collapsed First Amendment review to checking for fair use and the exclusion of idea protection.[162]

A close reading of the *Eldred* opinion bolsters this position. Immediately before holding that heightened First Amendment review was not appropriate in the case of the Copyright Term Extension Act ("CTEA") the Court wrote, "To the extent [the CTEA] raise[s] First Amendment concerns, copyright's built-in free speech safeguards are generally adequate to address them."[163] The Court had previously identified those safeguards as exclusively the idea/expression dichotomy and the doctrine of

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158. *See, e.g.*, Wickard v. Filburn, 317 U.S. 111, 129 (1942) (holding that Congress had substantial powers to stabilize wheat prices).

159. *See, e.g.*, New York Times v. United States, 403 U.S. 713, 727 (1971) (Breyer, J., concurring).

160. 487 F.3d 697 (9th Cir. 2007).

161. *Id.* Prior to 1992, copyright owners had to file a renewal registration and pay a fee to extend their copyright protection. *See* Copyright Renewal Act of 1992, Pub. L. 102-307, 106 Stat. 264 (codified as amended at 17 U.S.C. § 304 (2000 & Supp. II 2002)).

162. *Kahle*, 487 F.3d at 700 (citing Eldred v. Ashcroft, 537 U.S. 186, 219-20 (2003)).

163. *Eldred*, 537 U.S. at 221.

fair use.[164] The "free speech safeguards" and the "traditional contours of copyright protection" occupy the same logical place in the Court's reasoning: the presence of either makes First Amendment review unnecessary. Because it is certain that "free speech safeguards" means the doctrine of fair use and the idea/expression dichotomy, it is possible that the "traditional contours" means the same thing.

This definition of traditional contours would allow nearly any property right in expression so long as the property right did not protect ideas and allowed for a fair use defense.[165] Whenever a speaker wants to copy expression from someone else, the only First Amendment protections that speaker has from a property right asserted by the owner of the expression is the idea/expression dichotomy and the doctrine of fair use. This is true even if the asserted property right is not a copyright. For example, suppose that Congress passes a law under the Commerce Clause granting a publisher intellectual property rights in a work too old for copyright protection, works like *Pride and Prejudice* by Jane Austen, *A Tale of Two Cities* by Charles Dickens, or even the King James version of the Bible.[166] Congress's objective might be to encourage the republication of works that cannot be profitably exploited precisely because they are in the public domain.[167] Such a law would burden First Amendment interests in the same way that copyright does (by granting property rights to expression), and with the same justification (to ensure the public dissemination of expression). According to this definition of the traditional contours, the same First Amendment review would apply. As long as the law allowed for free use of ideas and for a fair use defense, the traditional contours of copyright law would not have been breached. This hypothesized "publication right" would, therefore, be identical to copyright law for the purposes of the First Amendment. Thus, consistent with the First Amendment, Congress could give the exclusive right to publish the Kings James version of the Bible to Simon and Schuster.[168] Furthermore, a court could not even measure the First Amendment interest in publishing the Bible against the government's interest in ensuring the Bible's dissemination. Because such a publication

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164. *Id.* at 219-20.

165. This is true absent Copyright Clause concerns, but, as pointed out above, the Copyright Clause has been rendered nearly toothless. *See supra* Section I.C.

166. *Cf.* R. Anthony Reese, *Is the Public Domain Permanent?: Congress's Power to Grant Exclusive Rights in Unpublished Public Domain Works*, 30 COLUM. J.L. & ARTS 531, 545-62 (2007) (arguing that a publication right to certain public domain works would be within Congress's Commerce Clause power).

167. *Id.*

168. Again, ignoring Copyright Clause concerns. *See id.*

right would not breach the traditional contours of copyright law, First Amendment review would not apply.

The problem with this definition is that it devalues the First Amendment interest a speaker has in verbatim copying. The *Eldred* Court did hold that the First Amendment "bears less heavily when speakers assert the right to make other people's speeches."[169] Rebecca Tushnet points out, however, that this statement is difficult to reconcile with other parts of First Amendment doctrine and with common sense.[170] The First Amendment protects a newspaper's right to publish even when they publish the works of others and even when that work was taken without the author's permission.[171] In some cases, such as when covering the songs of another musician or reproducing a play written and first staged by another, the speaker can only say what she wants to with other people's words.[172] For example, *Happy Birthday to You* is the traditional song to sing when celebrating a birthday.[173] No other song has the same cultural significance despite the relative simplicity of the tune and the words. There must be a First Amendment interest in singing that song. Writing a new song would not convey the same sense of tradition; singing merely the refrain in an effort to fit under fair use would not complete the birthday tradition. Granted, the interest in verbatim copying might be outweighed by the government's interest in protecting the financial security of the author;[174] not counting the public's interest in verbatim copying at all, however, misses a significant part of what humans use language to do. We communicate by copying. It cannot be, therefore, that copied speech is automatically less worthy of First Amendment protection than original expression. A definition of the traditional contours that reads a First Amendment interest in verbatim copying out of the First Amendment is not appropriate.

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169. *Eldred*, 537 U.S. at 191.

170. *See* Tushnet, *supra* note 135, at 562-86.

171. New York Times v. United States, 403 U.S. 713 (1971) (holding that the New York Times had a First Amendment right to print leaked government papers); Tushnet, *supra* note 135, at 562-86.

172. *See* Tushnet, *supra* note 135, at 562-86.

173. The song "Happy Birthday to You" is still under copyright protection. *"Happy Birthday" and the Money it Makes*, NY TIMES, Dec. 26, 1989 at C26.

174. *See* Int'l News Serv. v. Associated Press, 248 U.S. 215, 245 (1918) (holding that the Associated Press had a protectable property right in recently published news stories); *see also* Harper & Row Pubs., Inc. v. Nation Enters., 471 U.S. 539, 549 (1985) (holding that the First Amendment did not give a publisher the right to quote liberally from President Ford's memoirs before its publication).

C. Tradition Defines The Contours

The final hypothesis explaining the meaning of the Supreme Court's "traditional contours" language is much more permissive of First Amendment review. This third position contends that congressional practice, and possibly the history of Copyright Law from the Statute of Anne in England,[175] defines the contours. This approach necessitates a fine reading of the copyright acts, including the first American copyright act in 1790,[176] the substantial changes made in the 1909,[177] the 1976[178] Act, and modern practice.[179] The *Eldred* decision is consistent with this hypothesis because it spent much of its decision explaining that Congress had extended the copyright term, as it did with the CTEA, several times before.[180]

The Court of Appeals for the Tenth Circuit, in *Golan v. Gonzales*, recently adopted this hypothesis.[181] The *Golan* court held that the copyright restoration provision of the URAA was subject to heightened First Amendment review because it altered the traditional contours of copyright law by placing public domain works under copyright protection.[182] The question of whether Congress was in the habit of pulling works from the public domain figured prominently in the court's decision.[183] The court ultimately held that congressional practice in granting protection to works in the public domain was at most an anomaly.[184] But if Congress had made a more consistent practice of passing copyright restoration acts, presumably the court would have reached a different conclusion.[185]

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175. The Statute of Anne was the precursor to the American copyright system and was passed in 1710. HARRY RANSOM, THE FIRST COPYRIGHT STATUTE: AN ESSAY ON AN ACT FOR THE ENCOURAGEMENT OF LEARNING 1710 (1956).

176. Copyright Act of 1790, ch. 15, 1 Stat. 124.

177. Copyright Act of 1909, ch. 320, 35 Stat. 1075 (repealed 1976).

178. Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended in scattered sections of 17 U.S.C.).

179. *See, e.g.*, Sonny Bono Copyright Term Extension Act, Pub. L. 105-298, 112 Stat. 2827 (17 U.S.C. §§ 108, 203, 301-304 (2000 & Supp. V 2005)); Copyright Renewal Act of 1992, Pub. L. 102-307, 106 Stat. 264 (codified as amended at 17 U.S.C. 304 (2000)); Berne Convention Implementation Act, Pub. L. 100-568, 102 Stat. 2853 (codified as amended in scattered sections of 17 U.S.C.).

180. Eldred v. Ashcroft, 537 U.S. 186, 200-05 (2003).

181. *Golan*, 501 F.3d at 1189 ("[T]he *Eldred* Court's use of the word 'traditional' to modify 'contours' suggests that Congress's historical practice with respect to copyright and the public domain must inform our inquiry.").

182. *Id.* at 1192.

183. *Id.* at 1191-92.

184. *Id.*

185. *See id.*

There are a number of deviations from traditional practice in copyright law that would arguably subject much of modern copyright law to First Amendment review. For instance, an argument could be constructed that copyright protection for audio recordings is subject to heightened First Amendment review because phonographs were not included in the copyright rights regime until the Sound Recordings Act in 1971.[186] Therefore, there is an argument that there is no traditional copyright protection given to audio recordings. A similar argument could be made that the current subject matter of copyright[187] is subject to heightened First Amendment review because until the Copyright Act of 1976 Congress specified the types of works that it wanted to protect via copyright.[188] The broader language in copyright law today that gives copyright to "all original works of authorship fixed in any tangible medium of expression"[189] is certainly a deviation from traditional practice. The Berne Convention Implementation Act of 1988[190] changed American copyright law in a number of ways. Notably, architectural plans became protectable under copyright for the first time[191] and notice of copyright protection was no longer required to be placed on copyrighted materials.[192] Similarly, the Visual Artists Rights Act of 1990 gave artists "moral rights" in their works, and, for the first time in the nation's history, constrained what the buyer of a copyrighted work could do with the physical artifact that she bought.[193] Furthermore, until the Copyright Renewal Act of 1992, copyrights were subject to a renewal requirement whereby, without registration with the Library of Congress, the work would lapse into the public domain.[194] Presumably, the

186. *See* Sound Recordings Act of 1971, Pub. L. 92-140, 85 Stat. 391 (amended 1976).

187. *See* 17 U.S.C. § 102 (2000).

188. The Copyright Act of 1790 specified only "maps, charts, and books." Copyright Act of 1790, ch. 15, § 1, 1 Stat. 124, 124. Examples from the Copyright Act of 1909 include "books," "drawings or plastic works of a scientific or technical nature," and "photographs." Copyright Act of 1909, ch. 320, § 5, 35 Stat. 1075, 1076-77 (repealed 1976). Congress continued to explicitly list eligible works until 1976 when "copyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression" became the criteria of protectable subject matter. Copyright Act of 1976, 17 U.S.C. § 102 (2000).

189. 17 U.S.C. § 102.

190. Pub. L. 100-568, 102 Stat. 2853 (codified as amended in scattered sections of 17 U.S.C. (2000)).

191. Berne Convention Implementation Act § 4.

192. Berne Convention Implementation Act § 7.

193. Visual Artists Rights Act of 1990, Pub. L. 101-650, 104 Stat. 5128 (codified as amended in scattered sections of 17 U.S.C.).

194. *See* Copyright Renewal Act of 1992, Pub. L. 102-307, 106 Stat. 264, 264 (codified as amended at 17 U.S.C. 304 (2000)).

Golan court's rationale would subject all of these acts to heightened First Amendment review because they are reversals of long standing American policy on copyright law.

This hypothesis is vulnerable, therefore, to the charge that it reads congressional practice into the Constitution, by subjecting more recent laws to heightened scrutiny and giving deference to traditional practice. Thus, simply by adhering to a particular legislative scheme for a long time, Congress is able to change the constitutional standard. It is important to remember, however, that this theory would only subject amendments to the copyright laws to First Amendment review and would not automatically render those amendments unconstitutional. All of the reasons why copyright law generally is consistent with the First Amendment would still be in force.[195] A court would need only to examine the additional harm that the amendments to the copyright law cause to First Amendment interests. If the government interest in the new copyright law cannot justify that harm, then that new copyright law should be struck down.

Furthermore, in light of the burdens that copyright law imposes on expression,[196] it is prudent to subject changes in the copyright law to First Amendment review.[197] Doing so will ensure that the changes do not burden substantially more speech than is necessary to meet the objectives of copyright. This is the advantage that this third approach has over the previous two. Defining the traditional contours by the Copyright Clause collapses the highly searching First Amendment review into the highly deferential Copyright Clause review and inadequately protects expressive freedoms. Defining the traditional contours as the fair use doctrine and the idea/expression dichotomy devalues exact copying. Only defining the traditional contours with reference to traditional practice ensures that First Amendment rights are adequately protected.

D. Application of the Hypotheses to Determine Whether the URAA Provisions are Within the Traditional Contours

The preferable approach to define the traditional contours of copyright law is to say that traditional practices define the contours. In the interest of completeness, this Section applies all three hypotheses to see whether the URAA's provisions on copyright restoration and anti-bootlegging would be subject to First Amendment review.

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195. *See supra* Section II.E.
196. *See supra* Section II.E.
197. *See* Netanel, *supra* note 73, at 54.

1. *The URAA provisions analyzed under the hypothesis that the copyright clause defines the contours*

If First Amendment scrutiny were only to apply to copyright laws that exceed the bounds of the Copyright Clause, in accordance with the first hypothesis, the copyright restoration provision in the URAA would not be subject to heightened scrutiny. Every court to consider the question has held that the copyright restoration act is within the bounds of the Copyright Clause.[198]

The anti-bootlegging provisions, on the other hand, would almost certainly be held to heightened First Amendment scrutiny under this hypothesis. Every court to uphold the constitutionality of the anti-bootlegging provisions has held that the law is authorized by the Commerce Clause and not by the Copyright Clause.[199] The fact that several courts have characterized the anti-bootlegging provisions as "copyright-like"[200] is notwithstanding. Because the anti-bootlegging provisions are not copyright laws, they are not subject to the limitations in the Copyright Clause, which guarantee that the public gets something in return for the grant of copyright protection. The anti-bootlegging provisions cannot, therefore, claim the advantages that the copyright laws have in the First Amendment arena.

2. *The URAA provisions analyzed under the hypothesis that fair use and the idea/expression dichotomy define the contours*

The same result emerges when the fair use doctrine and the idea/expression dichotomy define the traditional contours of copyright law. The copyright restoration act simply puts foreign works that had fallen into the public domain under American copyright protection. The affirmative defense of fair use applies, and the act does not protect ideas. Therefore, if these two doctrines define the traditional contours of copyright law, then the copyright restoration act does not alter those contours and is not subject to heightened scrutiny.

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198. *See* Golan v. Gonzales, 501 F.3d 1179, 1186 (10th Cir. 2007) (reading Eldred to give Congress broad authority under the Copyright Clause); Kahle v. Gonzales, 487 F.3d 697, 701 (9th Cir. 2007) (same); Luck's Music Library v. Gonzales, 366 U.S. App. D.C. 66 (D.C. Cir. 2005) (same).

199. *See* United States v. Martignon, 492 F.3d 140 (2d Cir. 2007); KISS Catalog v. Passport Int'l Prods., 405 F. Supp. 1169 (C.D. Cal. 2005); *cf.* United States v. Moghadam, 175 F.3d 1269 (11th Cir. 1999) (holding that the criminal anti-bootlegging provision was not "fundamentally inconsistent" with the Copyright Clause, and therefore Congress had the power to enact it under the Commerce Clause).

200. *See* United States v. Martignon, 492 F.3d 140, 141 (2d Cir. 2007); KISS Catalog v. Passport Int'l Prods., 405 F. Supp. 2d 1169, 1174 (C.D. Cal. 2005); *cf.* United States v. Moghadam, 175 F.3d 1269, 1271 (11th Cir. 1999).

The anti-bootlegging provisions, on the other hand, have no allowance for the affirmative defense of fair use, or anything like fair use.[201] Therefore, the anti-bootlegging provisions fall outside of the traditional contours of copyright law and should be subject to heightened First Amendment scrutiny.[202]

3. *The URAA provisions analyzed under the hypothesis that traditional copyright law defines the contours*

The final hypothesis, and the one this Comment argues is correct, is that traditional practice defines the traditional contours of copyright law. This hypothesis would subject both the copyright restoration and the anti-bootlegging provisions to First Amendment scrutiny. The copyright restoration provisions alter traditional practice because they pull material from the public domain and put it back under copyright.[203] The anti-bootlegging provisions alter traditional practice because they protect expression in perpetuity, retroactively (in essence also pulling works from the public domain), and without any benefit of a fair use defense. The fair use defense in particular has been a part of American copyright law since 1841[204] and stems from an English doctrine from the eighteenth century.[205] The denial of a fair use defense to the appropriate use of protected expression, therefore, is a significant departure from the historical traditions of copyright. Both of these statutory rights to expression, therefore, deviate from the historical traditions of copyright law.

IV. FIRST AMENDMENT SCRUTINY APPLIED TO THE ANTI-BOOTLEGGING PROVISIONS AND TO COPYRIGHT RESTORATION PROVISIONS AFTER FINDING THEM OUTSIDE THE TRADITIONAL CONTOURS

Because the best definition of traditional contours is the traditional practice of copyright law, and this test would subject both the anti-bootlegging provisions and the copyright restoration provision to First Amendment scrutiny, this Part applies that scrutiny to test the constitutionality of the two laws. This Part first argues that the anti-bootlegging pro-

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201. *See* Uruguay Round Agreements Act §§ 512-13, 17 U.S.C. § 1101 (2000) and 18 U.S.C. § 2319A (2000); *Martignon*, 492 F.3d at 153.

202. *See also* Section IV.A.

203. *See Golan*, 501 F.3d at 1192.

204. Folsom v. Marsh, 9 F. Cas. 342 (C.C.D. Mass. 1841).

205. *See* Posting of William Patry to the Patry Copyright Blog, Fair Use and Fair Abridgment, http://williampatry.blogspot.com/2005/10/fair-use-and-fair-abridgment.html (Oct. 14, 2005).

visions are unconstitutional. It then contends that the copyright restoration provisions do not violate the First Amendment.

A. First Amendment Scrutiny of the Anti-Bootlegging Provisions

The anti-bootlegging provisions violate the First Amendment under intermediate scrutiny. As discussed above, copyright laws are arguably subject to strict scrutiny because they refer to content of the protected work and the allegedly infringing work.[206] The anti-bootlegging provisions not only refer to content, but discriminate based on content: they single out musical performances for especially burdensome treatment.[207] There is still no federal law prohibiting the unauthorized fixation of a magician's live performance, for example. If there is any copyright, or "copyright-like," law that deserves to be judged on the standards of strict scrutiny it is the anti-bootlegging provisions. However, because it is readily apparent that the anti-bootlegging provisions do not survive even intermediate scrutiny, which level of scrutiny is more appropriate need not be determined. Because they fail intermediate scrutiny they would fail the more demanding strict scrutiny as well.

The harm that the anti-bootlegging provisions cause to First Amendment interests is substantial as compared to copyright law generally. The property right is perpetual and retroactive: no one can ever distribute bootleg copies of musical performances for a profit no matter when they were made.[208] No other federal protection of expression is so broad. Additionally, the anti-bootlegging provisions have no exceptions for what, in the copyright context, is called "intermediate copying."[209] Intermediate copying, in the this context, occurs when someone fixes the sounds and images of a musical performance in order to later adapt that fixation into a mash-up, parody, or news report. This barrier to creating a news broadcast or a parody without the artist's permission poses a substantial limitation on speech.[210] For example, an artist may refuse to allow a camera to be focused fixed on them, especially during a controversial performance, but the performance may nonetheless be newsworthy. Because the anti-

206. *See supra* Section II.D.

207. 17 U.S.C. § 1101; 18 U.S.C. § 2319A.

208. 17 U.S.C. § 1101; 18 U.S.C. § 2319A, KISS Catalog, Ltd. v. Passport Int'l Prods., 405 F. Supp. 2d 1169, 1176 (N.D. Cal. 2005).

209. *Cf.* Sega Enters. v. Accolade, 977 F.2d 1510 (9th Cir. 1992) (holding that defendant's verbatim copying of plaintiff's computer code for the purpose of finding non-protectable elements of that code was not copyright infringement).

210. *See* Campbell v. Acuff-Rose Music, 510 U.S. 569, 579 (1994).

bootlegging provisions have no defense analogous to fair use, there is no safety valve protecting this kind of expression.[211]

By prohibiting all unauthorized fixations of live musical performances, the anti-bootlegging provisions suppress substantially more speech that is necessary to meet the government's interest in ensuring that performers have sufficient incentives to perform.[212] The government has no interest in prohibiting a parody or news use of an unauthorized fixation. The demand for such a use is not traceable to the performer; the demand comes from its value as news or parody.[213] Such a mash-up would have no harmful effect to the government's interest of keeping live performances financially viable, and so that speech does not need to be suppressed to meet the government's goal. Because the anti-bootlegging provisions are significant burdens on free speech and do not substantially serve the government's interest, the anti-bootlegging provisions fail under intermediate scrutiny.

The anti-bootlegging provisions also fail intermediate scrutiny because they prohibit the distribution of unauthorized recordings of live performances perpetually and retroactively.[214] The government interest in the anti-bootlegging provisions is to grant incentives to performers to perform more often, but the term of protection is far longer than necessary to promote that interest.[215] Performers do not need to control the unauthorized recordings of their performances thousands of years after their deaths in order to recoup their investment costs. Furthermore, it is difficult to understand how an *ex post facto* grant of protection encourages the creation of new works. The congressional record does not answer this question.[216] The retroactivity of the law, therefore, cannot be justified with reference to the government interest. Because the government interest cannot justify suppressing parody or news uses of live performances, nor the retroactivity and perpetuity of the law, the statute suppresses substantially more speech than is necessary to meet the government interest. The anti-bootlegging provisions, therefore, fail intermediate First Amendment scrutiny.

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211. 17 U.S.C. § 1101; 18 U.S.C. § 2319A.

212. *See* Heald & Sherry, *supra* note 33, at 1192; *see also* Zacchini v. Scripps-Howard Broad. Co., 433 U.S. 562, 576 (1977) (noting that the government interest in state rights of publicity is to grant the performer an economic incentive to perform).

213. *See Campbell*, 510 U.S. at 579.

214. 17 U.S.C. § 1101; 18 U.S.C. § 2319A; KISS Catalog, Ltd. v. Passport Int'l Prods., 405 F. Supp. 2d 1169 (N.D. Cal. 2005).

215. Nimmer, *supra* note 87, at 1193.

216. S. REP. NO. 103-412, at 225-26 (1994); H.R. REP. NO. 103-826, pt. 1, at 166 (1994) (moving directly from an analysis of Title IV to Title VI skipping Title V where the intellectual property provisions of the URAA were located).

This conclusion is consistent with the closest analogues to the anti-bootlegging provisions with a deep First Amendment jurisprudence—state rights of publicity. The anti-bootlegging provisions could be characterized as a limited federal right of publicity. Rights of publicity protect the image of an individual from commercial exploitation.[217] The anti-bootlegging provisions protect the image and sounds of a live performer, albeit only during a musical performance.[218] Therefore, the First Amendment rules governing rights of publicity are relevant to the anti-bootlegging context.

The Supreme Court has addressed the First Amendment implications of rights of publicity only once in *Zacchini v. Scripps-Howard Broadcasting Co.*[219] In *Zacchini*, the local broadcast news ran a story about Mr. Zacchini, the human cannon-ball, and broadcast the entirety of his fifteen second performance.[220] The Court held that the First Amendment did not bar Zacchini from recovery under a state right of publicity claim because broadcasting the entire performance put Mr. Zacchini at substantial risk of economic ruin.[221] Instead of paying to see his act in person, people could simply turn on their televisions during the news hour, and Zacchini would not see a dime of the profit. The Court also noted that rights of publicity serve similar ends as the copyright laws in that they also grant incentives for performers to perform more.[222] The Court further explained that rights of publicity do not protect ideas, similar to the idea/expression dichotomy in copyright law and, therefore, the news agency would be able to report on the bare occurrence of Mr. Zacchini's performance.[223] The Court did not specify what level of scrutiny it used to determine complicity with the First Amendment.

While *Zachini* would seem to give broad license to rights of publicity to suppress speech, different First Amendment rules governing rights of publicity have come out of state supreme courts and federal appeals courts that limit the scope of the protection. The California Supreme Court has held that there is a First Amendment right to "transformative" uses of celebrity images despite their rights of publicity.[224] The Court even bor-

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217. *See, e.g.*, Carson v. Here's Johnny Portable Toilets, Inc., 698 F.2d 831, 835 (6th Cir. 1983).

218. 17 U.S.C. § 1101; 18 U.S.C. § 2319A.

219. 433 U.S. 562 (1977).

220. *Id.* at 564.

221. *Id.* at 565.

222. *Id.* at 576.

223. *Id.* at 578.

224. Winter v. D.C. Comics, 30 Cal. 4th 881, 887 (2003) (holding that D.C. Comics did not infringe plaintiffs' rights of publicity by drawing them into a bizarre comic book world); Comedy III Prods. v. Gary Saderup, 25 Cal. 4th 387, 406 (2001).

rowed aspects of the codification of fair use to determine the First Amendment question.[225] This analysis has been fairly influential on other courts considering similar issues.[226] There is a strong counterargument, however, in the cases that when "the use and identity of [a celebrity's] name has become predominantly a ploy to sell . . . products rather than an artistic or literary expression . . . free speech must give way to the right of publicity" despite any "transformative" nature of the use or expressive content that the alleged infringer adds.[227]

The federal anti-bootlegging provisions contain no exceptions for any purpose, let alone the kinds of "transformative" use, such as parody,[228] that the California Supreme Court was concerned about.[229] Judge Kozinski wrote a spirited dissent from the denial of rehearing in *White v. Samsung Electronics America*, where previously the court had allowed Vanna White to enjoin a commercial that featured a robot facsimile of the actress.[230] "I can't see how giving [a celebrity] the power to keep others from evoking her image in the public's mind can be squared with the First Amendment."[231]

By requiring the authorization of the artist to record a public performance, the federal anti-bootlegging statutes give far more power to musicians to control their images than is consistent with the First Amendment. The anti-bootlegging provisions could, by their terms, be used to keep the celebrity's image from being evoked. Because there is no exception for news uses of unauthorized fixations, a musician could keep a particularly unflattering scene from being recorded and disseminated. The First Amendment does not allow this in the right of publicity context.[232] It would be unfortunate, for example, if Michael Richards had a federal right to enjoin those who filmed him during his racist tirade.[233] Because the an-

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225. *Comedy III Prods.*, 25 Cal. 4th at 404.

226. *See* World Wrestling Fed'n Enter., Inc. v. Big Dog Holdings, Inc., 280 F. Supp. 2d 413, 425 (W.D. Penn. 2003); ETW Corp. v. Jireh Publ'g, Inc., 332 F.3d 915, 936 (6th Cir. 2003); Tyne v. Time Warner Entm't Co., 901 So. 2d. 802, 809 (2005).

227. Doe v. TCI Cablevision, 110 S.W.3d 363, 374 (2003); *see also* White v. Samsung Electronics Am., Inc., 971 F.2d 1395 (9th Cir. 1992).

228. Winter v. D.C. Comics, 30 Cal. 4th 881, 887 (2003).

229. *See* Uruguay Round Agreements Act §§ 512-13, 17 U.S.C. § 1101 (2000) and 18 U.S.C. § 2319A (2000).

230. White v. Samsung Electronics Am., Inc., 989 F.2d 1512 (9th Cir. 1993).

231. *Id.* at 1519.

232. *Comedy III Prods.*, 25 Cal. 4th at 406.

233. *Cf.* Jessica Heslam, *Nutty Neighbor Shocks Nation with Racist Rant*, BOSTON HERALD, November 21, 2006, at 3. Although, since Mr. Richards was not performing musically, he would not benefit from the anti-bootlegging provisions. 17 U.S.C § 1101 (2006); 18 U.S.C. § 2319A (2000 & Supp. V 2005).

ti-bootlegging provisions contain no exception for parody uses of unauthorized recordings, the federal anti-bootlegging provisions allow musicians to enjoin surreptitious recorders who just want to make fun of the performer, which First Amendment law in the right of publicity context does not allow.[234] Because the anti-bootlegging provisions contain no protections whatsoever for these kinds of uses, they violate the First Amendment.

B. First Amendment Scrutiny of the Copyright Restoration Provisions

The first step is deciding what level of review is appropriate for the copyright restoration provisions.[235] Strict scrutiny is not appropriate because the copyright restoration provisions make no mention of the content of the works to which they are restoring copyright protection.[236] Once we assume, as *Eldred* instructs, that copyright generally is consistent with the First Amendment,[237] the restoration provisions are at most content-neutral regulations of speech, and therefore are subject to intermediate scrutiny. However, because the copyright restoration provisions burden speech in the exact same way as the bulk of copyright law (by giving works of authorship copyright protection) and for the same duration, they may only incidentally burden expressive interests when compared to copyright law generally. Rationality review would be applied in that case. This Section will first explore an intermediate scrutiny analysis and conclude by arguing that the copyright restoration provisions should be judged by rationality review.

1. Intermediate Scrutiny

The First Amendment interest harmed by the copyright renewal provisions is the interest in other people's copyrighted speech.[238] That is, potential speakers who want to copy from the copyrighted works of others might only use works that had fallen into the public domain in order to avoid having to negotiate licenses. The copyright restoration provisions, by removing works from the public domain, frustrate those intentions. It is undisputed that, "whenever speech goods can be used only with permission, even merely with payment, some things that might be said or written or painted or otherwise given expressive form by individuals will not be

234. *Winter*, 30 Cal. 4th at 887.
235. *See supra* Section II.E.
236. Uruguay Round Agreement Act, § 514, 17 U.S.C. § 104A (2000).
237. *See* Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).
238. *See supra* text accompanying notes 169-172.

produced."[239] It is safe to say that copyright protection does prevent some individuals from speaking.[240] By removing works from the public domain, thereby silencing those who would copy from them were they in the public domain, the copyright restoration provisions harm interests protected by the First Amendment.

Weighing against the First Amendment interest is the government's interest in providing copyright protection to foreign works that have fallen into the public domain through the operation of formalities. This interest is a somewhat modified version of the standard government interest provided for in the Copyright Clause, which is to "Promote the Progress of Science and the Useful Arts."[241] That is, by providing the incentive of copyright protection retroactively for foreign authors, Congress is hoping to encourage similar protection abroad for American authors.[242] The strengthened international copyright regime will give incentives for the importation of more works and the creation of more works. So the governmental interest asserted is a variant of the "engine of free expression" argument used in the Supreme Court decisions *Harper & Row Publishers v. Nation Enterprises*[243] and *Turner II*.[244]

When Congress retroactively grants copyright protection to works that already exist, however, no incentive structure is necessary to encourage their creation. Melville Nimmer argued that a perpetual copyright would be contrary to the First Amendment because "the copyright interest in encouraging creativity largely vanishes" once a long time has passed since the author created the work while the "speech interest in expression remains constant."[245] This rationale easily extends to the restoration of copyright to works in the public domain. Once the works are in the public domain it does not make sense to talk about encouraging the work's crea-

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239. *See* Diane Leenheer Zimmerman, *Is There a Right to Have Something to Say?: One View of the Pubic Domain*, 73 FORDHAM L. REV. 297, 310 (2004).

240. *See supra* Section II.

241. *See* Golan v. Gonzales, 501 F.3d 1179, 1186-87 (10th Cir. 2007).

242. *See* Thomas Gordon Kennedy, *GATT-Out of the Public Domain: Constitutional Dimensions of Foreign Copyright Restoration*, 11 ST. JOHN'S J. LEGAL COMMENT. 545, 556 (1996) (arguing that due process and equal protection challenges to the copyright restoration provisions would most likely fail); *see also* Heald & Sherry, *supra* note 33, at 1179 (noting that the U.S. was under considerable international pressure to enact the copyright restoration provision).

243. 471 U.S. at 558.

244. Turner Broad. Sys. v. FCC (*Turner II*), 520 U.S. 180, 226 (1997); *see also supra* Section II.E.

245. Nimmer, *supra* note 87, at 1193.

tion because the work already exists.[246] Diane Leenheer Zimmerman argues that the public domain is a "one-way ratchet."[247] She contends that the First Amendment requires that once the public has notice that expression is available for use, it remain available forever.[248]

There is some case law to support this position. In *Dastar Corp. v. Twentieth Century Fox Film Corp.* the Court held that the owner of a trademark cannot use that trademark ownership to functionally extend copyright protection over a work in which the copyright had expired.[249] In *Dastar*, the defendant published a videotape series copied from one produced by the plaintiff, which had fallen into the public domain due to a failure to renew the copyright.[250] The plaintiff then sued the defendant on the theory that the defendant was passing off the plaintiff's goods as its own, which is a violation of the Lanham Act.[251] The Court held that "the rights of a patentee or copyright holder are part of a carefully crafted bargain . . . under which, once the patent or copyright monopoly has expired, the public may use the invention or work at will."[252] Thus, the Court denied the plaintiff's claim and construed the Lanham Act to give no more protection than the Copyright Act over expressive works.[253]

Dastar is predominantly about statutory construction and can be explained without reference to the Constitution. There is still, however, an unmistakable notion in *Dastar* that the public domain is permanent[254] and that after monopoly rights expire, the expression in a copyright should be dedicated to the public. If the Copyright Clause does not guarantee this permanence, then the only Constitutional basis for public domain permanence is the First Amendment. The court in *Golan v. Gonzales* made just this leap from *Dastar*'s statutory construction to the First Amendment.[255]

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246. *See* Heald & Sherry, *supra* note 33, at 1180-81.

247. *See* Diane Leenheer Zimmerman, *Is There a Right to Have Something to Say?: One View of the Pubic Domain*, 73 FORDHAM L. REV. 297, 372 (2004).

248. *Id.*

249. 539 U.S. 23, 34 (2003).

250. *Id.* at 26-27.

251. *Id.* at 27; *see also* 15 U.S.C. 1125 (2000).

252. *Dastar*, 539 U.S. at 33-34 (citing Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150-51 (1989)) (internal quotation marks omitted).

253. *Id.* at 35-36 (construing the word "origin" in the Lanham Act to mean manufacturer instead of author).

254. *See* Zimmerman, *supra* note 247, at 320 ("So far, the clearest recognition by the Court that some absolute barrier against proliferating intellectual property rights may reside in the Copyright and Patent Clause can be found in the Court's recent decision, *Dastar Corp. v. Twentieth Century Fox Film Corp.*").

255. Golan v. Gonzales, 501 F.3d 1179, 1192 (10th Cir. 2007) (citing *Dastar*, 539 U.S. at 33-34) ("[W]orks in the public domain belong to the public.").

Putting aside the permanence of the patent public domain,[256] which *Dastar* also supports,[257] it makes sense to suppose that the First Amendment would be part of the "carefully crafted bargain" in copyright law.[258]

Intermediate scrutiny requires that the government interest in suppressing speech be sufficiently significant to justify the suppression. The Court in *Turner II* held that the government interest in promoting expression is sufficiently significant to justify a suppression of speech.[259] Therefore, the copyright restoration provisions, which arguably serve the government interest in promoting expression, fulfills the significance prong of intermediate scrutiny.

The copyright restoration provisions, however, also need to be substantially related to the interest of encouraging expression.[260] Because no incentive is necessary to encourage authors to create works that already exist, it is difficult to argue that there is a substantial relationship between restoring copyright and encouraging the production of original works of authorship. Congress would need some factual basis for believing that an *ex post facto* grant of protection would encourage the creation of new works.[261] The Senate Report on the subject contains no discussion of how the restoration provisions achieve this goal.[262] The House Report skips the subject of the intellectual property provisions entirely.[263] In light of that, and given the difficult logical task of linking a retroactive grant of protection to the encouragement of new works, the restoration provisions would fail intermediate scrutiny.

2. *Rationality Review*

To apply rationality review, it must be established that the provisions impose merely incidental burdens on speech. The URAA only restores those foreign works that fell outside of copyright protection because of the

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256. U.S. CONST. art. 1, § 8, cl. 8 does protect the permanence of the public domain in expired patents. *See* Graham v. John Deere, Co., 383 U.S. 1, 5-6 (1966).

257. *Dastar*, 539 U.S. at 33-34.

258. *Cf.* Eldred v. Ashcroft, 537 U.S. 186, 220-221 (2003) (holding that copyright laws are not categorically immune from First Amendment challenges).

259. Turner Broad. Sys. v. FCC (*Turner II*), 520 U.S. 180, 226 (1997) (Breyer, J., concurring).

260. *See id.*

261. *See id.*

262. S. REP. NO. 103-412, at 225-26 (1994).

263. *Cf.* H.R. REP. NO. 103-826, pt. 1, at 166 (1994) (moving directly from an analysis of Title IV to Title VI skipping Title V where the intellectual property provisions of the URAA were located).

operation of formalities in the United States copyright regime.[264] That is, but for the filing of the appropriate piece of paper, or manufacture of the work in the United States, or the author living in the right country, all of the works restored would be under copyright today.[265] While it is difficult to deny that there is a general First Amendment interest in a public domain, the copyright restoration provisions do not harm that interest any more than copyright law generally. If there is a First Amendment interest for half of a copyright term to be conditioned upon the filing of a renewal registration, it is a very small one. While not requiring renewal registrations certainly shrinks the public domain, so too did extending the term of copyright by twenty-years, which the *Eldred* Court held did not implicate First Amendment interests.[266] Likewise, any First Amendment interest for copyright to be conditioned upon the manufacture of the protected work in the United States or the author living in the United States or one of its allies or trading partners would be tiny. Any burden that the particular embodiment of copyright law imposes on a speaker is incidental, like general income or operations taxes being imposed on a newspaper,[267] when compared to the burdens imposed on speech by copyright generally.

It is clear that speech is suppressed, because all of copyright law suppresses speech, but the copyright restoration provisions in particular do not suppress any more speech than copyright law itself. The copyright restoration provisions only marginally deviate from the traditional contours. Because *Eldred* held that copyright law generally does not harm First Amendment interests,[268] slight additional harms should not carry with them the entire burden to speech caused by copyright law in general.

It might be objected, however, that the copyright restoration provisions substantially harm the reliance interests of the public who were put on notice that the restored work was available for use when it fell into the public domain.[269] While the copyright restoration statute gives defenses to so-called "reliance parties," the protections from copyright granted to them are not complete, and the statute does nothing for the public generally, only for those who began exploiting the restored work while it was in the

264. Uruguay Round Agreements Act § 514(h)(6), 17 U.S.C. 104A(h)(6) (2000).

265. *Id.*

266. Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).

267. *See* Grosjean v. Am. Press Co., 297 U.S. 233, 250 (1936) ("It is not intended . . . that the owners of newspapers are immune from any of the ordinary forms of taxation for support of the government.").

268. Eldred v. Ashcroft, 537 U.S. 186, 221 (2003).

269. *See* Brief for Plaintiffs-Appellants at 12-20, Golan v. Gonzales, 501 F.3d 1179 (10th Cir. 2007) (No. 05-1259) (detailing the harms caused to the plaintiffs by the copyright restoration provision).

public domain.[270] The Eldred Court, however, rejected this argument when it held that a twenty-year extension to copyright protections then in effect did not violate the First Amendment.[271] Indeed, the plaintiffs in that case purported to rely on public domain works for their livelihood and had been planning to use works then under copyright as soon as they expired.[272] There is one obvious difference between the reliance interests of the *Eldred* plaintiffs and those seeking to exploit the restored works—in the first case the copyright protection did not actually expire and the second case it did. This difference has no impact, however, on the First Amendment. The expressive interests of the *Eldred* plaintiffs are identical to the expressive interests of those who relied on the restored works. Both sets of plaintiffs wanted to use the speech of others and both sets of plaintiffs invested in their ability to do so. The government interest is the same as well: to encourage the creation of new works. If in *Eldred* term extension was not a First Amendment violation, it is not a First Amendment violation in the case of the restored works.

Because the harm to speech in this case is only incidental when compared with copyright law generally, Congress need only a rational reason to uphold the law. It is rational for Congress to conclude that giving an *ex post facto* grant of copyright protection would engender greater confidence in both foreign authors and foreign governments. It is rational for Congress to conclude that this would strengthen enforcement of copyright law around the world[273] and generally encourage the creation of more works of authorship.

These conclusions are heartening for zealous advocates of both copyright and the First Amendment. The conclusions mean that if the government were to change copyright law to have no public domain or to pull works from the public that had a full bite at the apple or to protect Shakespeare then intermediate scrutiny would apply and Congress would need to fully back up its asserted interest with factual findings. If, on the other hand, Congress is merely tinkering with the form of copyright protection, then it gets much greater deference. In light of the Court's established rationale that copyright is the engine of expression this is the correct framework.

The seriousness of the First Amendment harm matters to the First Amendment analysis and the depth of intrusion that Congress makes into the public domain is proportional to the First Amendment harm. It is not

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270. *See* 17 U.S.C. § 104A; *see also supra* Section II.A.
271. Eldred v. Ashcroft, 537 U.S. at 194.
272. *Id.* at 193.
273. *See* S. REP. NO. 103-412, at 225-26 (1994).

helpful, therefore, to simply maintain that the public domain has to be permanent. It should be mostly permanent, but amenable to intrusions around the periphery.

V. CONCLUSION

In *Eldred v. Ashcroft* the Court opened the door to First Amendment review of copyright laws.[274] Now it is the law that if a copyright law goes outside of the traditional contours of copyright law, then First Amendment review will apply. It is still unsettled, however, what exactly those contours are. They could be the Copyright Clause itself, the fair use doctrine and the idea/expression dichotomy, or the history of copyright law up to the modern day. Equating the Copyright Clause question with the First Amendment question collapses the highly deferential review of the Copyright Clause into the highly searching First Amendment inquiry. This destroys the First Amendment's relevance to copyright cases, contrary to the holding of *Eldred*. Acknowledging only the First Amendment interests protected by the doctrine of fair use and idea/expression dichotomy unreasonably devalues the expressive interest in copying others. Only by subjecting each amendment made to the copyright laws to First Amendment review will First Amendment interests be protected, because only then will the government's interest in passing that law be weighed against the interest in the expression that it suppresses.

The First Amendment review, moreover, that is undertaken after a transgression from the traditional contours is found, should take into account the depth of the transgression. If a copyright law, like the restoration provisions, only changes the implications of filing a particular piece of paper, then that is a minor change in the copyright regime and does not merit a searching scrutiny. If however, like the anti-bootlegging provisions, a copyright law breaks important and substantive traditions then intermediate scrutiny should apply and Congress must provide a detailed explanation for why that transgression from tradition is justified. Doing so consistently will ensure that copyright laws will not suppress substantially more speech than is necessary to reward authors.

274. *See* Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 559 (1985).