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INTELLECTUAL PROPERTY LAW HYBRIDIZATION

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Traditionally, patent and copyright laws have been viewed as separate bodies of law with distinct utilitarian goals. Conventional wisdom holds that patent law aims to incentivize the production of inventive ideas, while copyright focuses on protecting the original expression of ideas, but not the underlying ideas themselves. This customary divide between copyright and patent laws finds some support in the distinction between "authors" and "inventors," as well as that between "writings" and "discoveries," in the U.S. Constitution's Intellectual Property Clause. And Congress, courts, and scholars have largely perpetuated the divide in separately enacting, interpreting, and analyzing copyright and patent laws over time.

This Article argues for partially bridging this traditional divide between patent and copyright laws. It proposes doing so by adjusting copyright and patent law defenses and remedies so that each body of law more explicitly recognizes and facilitates the purposes of the other. In particular, in some copyright cases that implicate technological innovation, copyright law's fair use defense would be well served by incorporating patent law principles relating to obviousness and novelty in assessing whether some technology's use of copyrighted works is a fair use. Furthermore, injunctive relief standards under patent law should expressly take into account how granting patent law remedies may affect

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copyrightable creative activities.

At least three reasons justify abandoning the conventional divide between copyright and patent laws in pursuit of such intellectual property law hybridization. First, the traditional divide fails to take into account the increasingly interdependent relationship between creative and inventive efforts prevalent in today's world. Second, the traditional divide ignores much modern neurobiological, psychological, and cultural research. This research shows that the creative processes that lead to both copyrightable expression and patentable invention are often so intertwined as to make neatly dividing and facilitating them under separate bodies of law difficult. And third, some recent scholarship suggests that, based on the historical record, the Constitution's Intellectual Property Clause is best interpreted as assuming interdependencies between creative and inventive activities. This Article concludes by suggesting that hybridization efforts may be warranted not only in the intellectual property realm, but also within the law more generally.

INTRODUCTION

When the Wright brothers developed their methods for flight, their clear choice for preventing others from using their flight methods was patent law.[1] But when J.K. Rowling wrote the Harry Potter series, her primary means of stopping copycats was and remains copyright law.[2] Why the difference? Traditionally, patent and copyright laws have been conceived of

1. *See generally* LAWRENCE GOLDSTONE, BIRDMEN: THE WRIGHT BROTHERS, GLENN CURTISS, AND THE BATTLE TO CONTROL THE SKIES (2014).

2. *See generally* ROBERT S. WANT, HARRY POTTER AND THE ORDER OF THE COURT: THE J.K. ROWLING COPYRIGHT CASE AND THE QUESTION OF FAIR USE (2008).

as separate bodies of law with distinct objectives; they are meant to encourage and protect different types of activities.[3] Patent law generally aims to incentivize parties to develop new and non-obvious utilitarian inventions, such as (at the time) the Wright brothers' methods of flight.[4] Patent law's primary mechanism for encouraging such activity consists of providing inventors like the Wright brothers with exclusive rights to their inventive ideas.[5]

Copyright law, conversely, seeks to foster original, creative expression. It does so by providing authors with exclusive rights to their original expression of ideas.[6] But copyright protection does not extend to the underlying ideas themselves, nor to the utilitarian or functional aspects of creative works.[7] Hence, copyright law provided the Wright brothers with little if any recourse for protecting their inventive ideas relating to flight. Nor can Rowling rely on copyright to protect the general idea of a book on wizardry. Rowling can, however, look to copyright to prevent others from copying her literal text, as well as some other elements of her works that may constitute her original, creative expression.

This bifurcated understanding of copyright and patent laws is rooted in historical conceptions of the constitutional basis for copyright and patent laws.[8] And over time, Congress, courts, and scholars have largely perpetuated this customary divide in implementing, interpreting, and theorizing each body of law.[9] Indeed, prior scholarship has not only treated the divide as fixed, but in some cases has called for bolstering it.[10]

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3. *See generally infra* Section I.A.

4. *See generally* 35 U.S.C. §§ 102–103 (2012) (setting forth patent law's novelty and non-obviousness requirements).

5. *See generally* 35 U.S.C. § 271 (2012) (setting forth the basic rights of patent holders).

6. *See generally* 17 U.S.C. § 106 (2012) (setting forth the basic rights of copyright holders).

7. *See, e.g.*, 17 U.S.C. § 102(b) (2012) (expressly carving out from copyright protection "any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work").

8. *See, e.g.*, Dotan Oliar, *The (Constitutional) Convention on IP: A New Reading*, 57 UCLA L. REV. 421, 463–64 (2009).

9. *See generally infra* Section I.A.

10. *See, e.g.*, Viva R. Moffat, *The Copyright/Patent Boundary*, 48 U. RICH. L. REV. 611 (2014) (arguing for eliminating copyright protection for industrial design generally, which, she argues, is more appropriately protected by patent law

But what happens when something—say, software, or the design of a car—includes both utilitarian and creative elements? The general approach has been to maintain the traditional divide by granting patents to the utilitarian elements of the work, and copyright to the creative parts thereof.[11] But effectively implementing this divide when the utilitarian and creative elements of a work are significantly intertwined has proven to be a difficult task for courts, and the legal precedents in such contexts are often unsatisfying as a result.[12]

The traditional divide between copyright and patent laws also ignores the increasingly interdependent realities of creative and inventive activities. In today's world, technological innovations facilitate more and more creative activity, and vice-versa.[13] The explosion of software "apps" featuring creative content in response to the development of mobile technologies is a clear example of technological innovation fueling creative activity.[14] And that increased creative activity in turn fuels additional technological innovation. The development of Netflix and other streaming technologies, for instance, are technological innovations spurred in part by the desire to monetize the growing amount of creative content available.[15]

Given these interdependent relationships, should someone with a patent on, say, podcasting technology be able to stop all podcasts from being created? Or should copyright holders be able to prevent the development of new technological innovations, such as peer-to-peer file-sharing technologies, simply because those technologies can be and are used to

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alone); J.H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. 2432, 2444–46 (1994) (arguing that copyright and patent laws have been expanded to cover objects for which they were not intended, and suggesting that such legal hybrids are a negative development).

11. *See generally infra* Section I.A.

12. *See infra* Section II.B.

13. *See infra* Section II.B.

14. For instance, Apple's introduction of mobile technologies relating to its App Store has spawned the creation of millions of apps, many of which feature creative content. *See* Sarah Perez, *App Store Downloads Top 85 Billion, Revenue Up 36 Percent Year-Over-Year*, TECHCRUNCH (Oct. 20, 2014), http://techcrunch.com/2014/10/20/app-store-downloads-top-85-billion/ [http://perma.cc/ZG26-MK7C].

15. *A Brief History of Netflix*, CNN (July 21, 2014, 6:06 PM), http://www.cnn.com/2014/07/21/showbiz/gallery/netflix-history/ [http://perma.cc/7HGS-9KV8] (indicating that Netflix was founded, in part, in order to use the Internet to rent movies to consumers).

infringe copyrights? Scholars have wrestled with these types of questions for some time.[16] But they have often struggled to offer a coherent theory as to why copyright law should take into account its effects on technological innovation, which is generally viewed as the domain of patent law, or why patent law should consider its implications for creative activity, which is generally seen as the province of copyright law.[17]

This Article offers intellectual property law hybridization as a way out of such intellectual property morasses. In other words, it argues that partially bridging the traditional divide between copyright and patent laws is a promising way to better take into account the interdependent realities of creative and inventive activities. Hence, patent law should explicitly aim to facilitate expressive activity, and copyright law should be augmented in ways that expressly support inventive innovation. One promising way to achieve this type of hybridization is by adjusting defenses and remedies under each body of law. For instance, patent law remedies should more explicitly take into account their potential effects on creative activities. And copyright law's fair use defense should, in certain cases implicating technological innovation, expressly incorporate patent law principles relating to obviousness and novelty in assessing whether some technology's use of copyrighted works is a fair use.

Other scholars have previously argued in favor of various intellectual property law reforms based on comparing the different bodies of intellectual property law.[18] But in most

16. *See, e.g.*, Michael A. Carrier, *Copyright and Innovation: The Untold Story*, 2012 WIS. L. REV. 891 (discussing how certain copyright law decisions negatively affected the pace and direction of technological innovation); Edward Lee, *Technological Fair Use*, 83 S. CAL. L. REV. 797 (2010) (discussing how copyright law might be reformed in order to better protect technological innovation).

17. *See infra* Section II.B and Part III.

18. *See, e.g.*, Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719 (2009) (arguing for reforming patent law's claiming features to be more in line with copyright law's claiming doctrines); Jeanne C. Fromer & Mark A. Lemley, *The Audience in Intellectual Property Infringement*, 112 MICH. L. REV. 1251, 1299–1301 (2014) (suggesting certain reforms to patent law based on comparing the advantages that copyright law has in similar areas); Maureen A. O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177 (2000) (proposing a fair use exception for patent law); Katherine J. Strandburg, *Patent Fair Use 2.0*, 1 U.C. IRVINE L. REV. 265 (2011) (same); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475 (2006) (advocating for adoption of an independent invention defense to patent

cases, these proposals focus on borrowing concepts and doctrines from other areas of intellectual property law in order to improve another body of intellectual property law in achieving its own distinct purposes. In essence, such proposals argue for doctrinal borrowing between the distinct bodies of law in order to maintain and improve intellectual property law's bifurcated reality. They fall short, however, of arguing that copyright law should explicitly address its effects on inventive activities, or that patent law should directly concern itself with encouraging copyrightable creative activities. This latter type of hybridization, in contrast, is the focus of this Article.

Some scholars have come closer to arguing in favor of some degree of melding between the distinct bodies of intellectual property law.[19] Yet, even those accounts fall short of suggesting that patent law should include as one of its explicit tenets a focus on facilitating copyrightable creative activity, or that copyright law should actively seek to promote inventive activity. Instead, they typically argue that copyright law should avoid impeding innovation when possible, largely on the basis of First Amendment free speech values.[20] But that type of argument falls short of this Article's solution, which is that patent and copyright law should each explicitly incorporate within their corpuses the purposes of the other.

One significant factor justifying such intellectual property law hybridization is the interdependent nature of many creative and innovative activities in the modern world. As briefly mentioned above, creative output and the commercial possibilities associated with it increasingly spur innovative efforts, and innovation increasingly fosters creative outputs and commercial opportunities related to them. Furthermore, much modern neurobiological, psychological, and cultural

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infringement). *See generally infra* Section I.B.1.

19. *See, e.g.*, Carrier, *supra* note 16 (setting forth a number of proposed reforms to copyright law that may help foster innovation); Peter DiCola, *Copyright Equality: Free Speech, Efficiency, and Regulatory Parity in Distribution*, 93 B.U. L. REV. 1837 (2013) (proposing equal treatment for the various distribution technologies so as to avoid slowing innovation); Lee, *supra* note 16 (proposing modifying copyright law's fair use doctrine in order to better take into account its effects on technological innovation); *See generally infra* Section I.B.2.

20. *See, e.g.*, Lee, *supra* note 16, at 813–18.

research suggests that creativity and invention are highly interrelated processes that are not easily divvied up under either body of law.[21]

Hence, without explicit adjustments in each body of law that seek to adapt to these interdependent relationships, each body of law fails to be as instrumental as it could be in fostering the "Progress of Science and [the] useful Arts," the constitutional basis for copyright and patent laws in the first place.[22]

Hybridizing both patent and copyright laws in order to account for the relationships between creative and inventive activities also better aligns each body of law with the predominant utilitarian theory behind the Constitution's Intellectual Property Clause. This theory generally posits that intellectual property rights are granted as incentives to create and invent that which would not be developed or publicly disclosed without granting those rights.[23] By facilitating the interdependent realities of creative and inventive activities, intellectual property law hybridization would provide additional incentives for both creative and inventive activity, thereby arguably offsetting whatever weakening of incentives that may occur as a result of such hybridization.

The Constitution's Intellectual Property Clause also arguably supports such hybridization efforts. That is, although traditionally the constitutional provision authorizing copyright and patent law has been interpreted to align inventors with "discoveries" and the progress of the "useful Arts," and authors with "writings" and the progress of "Science," nothing in the

21. *See, e.g.*, Gregory N. Mandel, *Left-Brain Versus Right-Brain: Competing Conceptions of Creativity in Intellectual Property Law*, 44 U.C. DAVIS L. REV. 283 (2010) (reviewing psychological, neurobiological, and cultural research that suggests that artists and inventors both rely on the same creative faculties in producing new works, and arguing on this basis that joint inventor and joint authorship laws under patent and copyright law, respectively, should be more similar than they actually are); Erez Reuveni, *Copyright, Neuroscience, and Creativity*, 64 ALA. L. REV. 735 (2013) (arguing that copyright law fails to take into account modern neuroscience and psychology research on how creativity occurs and suggesting how copyright may better take such research into account). *See generally infra* Section II.B.

22. U.S. CONST. art. I, § 8 ("The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries").

23. *See infra* note 174 and accompanying text.

Constitution itself mandates this dichotomy.[24] Instead, the interdependent realities of creative and innovative activities suggest that a hybridized interpretation is a better one. And according to some recent scholarship, the history behind the Clause's adoption provides some validation for such a take on the Clause's meaning.[25]

None of this is to say that traditional intellectual property law bifurcation is without merit in many cases. But maintaining these distinct bodies of law does not require either body of law to ignore the purposes of the other. Indeed, good reasons exist for the opposite result, namely, that each body of law should do all in its power to actively promote the traditionally distinct purposes of the other. And when some area of technology, such as software, defies easy categorization into either the patent or copyright bucket, each body of law should adapt to that reality, too. In sum, the benefits of both intellectual property law hybridization and bifurcation can and should coexist.

This Article proceeds as follows. Part I reviews traditional accounts of copyright and patent laws as separate bodies of law with distinct purposes. It also reviews recent literature that argues that copyright and patent law should become more similar in a variety of ways. It demonstrates how such proposals typically aim to improve each body of law in realizing its own distinct purposes, rather than hybridizing the bodies of law in order to facilitate the innovative proclivities of copyright law or the creative faculties of patent law. And in cases where the proposals do argue in favor of something closer to intellectual property law hybridization, Part I shows that they often lack a coherent theory for why copyright should actively seek to foster inventive activity, or why patent law should be concerned with the purposes behind copyright law.

Part II then reviews the mounting evidence highlighting the strong interrelationships between creative and innovative activities. In particular, it examines studies that review such interdependencies, research on the often inseparable nature of creativity and invention, as well as some representative real-world examples of these dynamics at play. These interdependencies, this Article argues, provide significant

24. U.S. CONST. art. I, § 8; *infra* Section II.C.
25. *See* Oliar, *supra* note 8, at 465–69.

reasons for pursuing copyright and patent law hybridization. Part II also reviews recent scholarship assessing the history behind the Constitution's Intellectual Property Clause, which history also arguably supports such hybridization efforts.

Part III turns to some recent proposals from others that, either explicitly or implicitly, seek to incorporate into patent law and copyright law changes that may facilitate the purposes of the other body of law. These proposals, however, fall short of arguing in favor of intellectual property law hybridization as articulated in this Article and thus fall short of promising the benefits that such hybridization would provide. Part III therefore suggests additional changes to these proposals that would help achieve intellectual property law hybridization. It then applies these reformed proposals to two real-world examples: the first involves a significant copyright dispute between Oracle and Google, and the second relates to a patent dispute between "patent assertion entities" (often referred to as "patent trolls") and podcasters.

The Article concludes by suggesting that legal hybridization efforts could prove useful not only within the intellectual property law sphere, but in broader areas of the law as well.

I. INTELLECTUAL PROPERTY LAW BIFURCATION

As briefly discussed above, patent and copyright laws have been traditionally viewed as separate bodies of law serving distinct purposes. Section I.A below reviews traditional accounts of this bifurcation. Section I.B then examines recent proposals arguing in favor of adapting each body of law to make each more compatible with the other. However, as Section I.B will show, such efforts most typically aim to improve each body of law in pursuing its distinct purposes, rather than hybridizing each body of law in order to facilitate the purposes of the other. And where the proposals do aim at some form of harmonization, they often lack a coherent theory supporting this conceptual move. Later, Parts II and III argue that this latter form of hybridization should be a goal of intellectual property law more generally because of the interrelationships between creative and inventive activities.

A. *Traditional Accounts of Intellectual Property Law Bifurcation*

Conventionally, the Constitution's Intellectual Property Clause has been understood to include authority for Congress to establish two distinct bodies of law: copyright and patent law.[26] Copyright law, by securing to authors exclusive rights in their "Writings," is meant to "promote the Progress of Science," while patent law, by granting inventors exclusive rights in their "Discoveries," is meant to promote the "Progress of . . . [the] useful Arts."[27] Thus, according to the majoritarian view, the U.S. Constitution itself provides a basis for Congress to implement two separate bodies of law with distinct objectives.[28]

Congress, in enacting both copyright and patent laws, has largely followed some form of this bifurcation in its handiwork. According to the Copyright Act, copyright applies to "original works of authorship" that are "fixed in any tangible medium of expression" from which they can be "perceived, reproduced, or otherwise communicated."[29] The Copyright Act makes clear, however, that copyright does not apply to any "idea, procedure, process, system, method of operation, concept, principle, or discovery," no matter how described.[30] Patent law is the appropriate body of law for protecting these domains.[31] The Copyright Act goes on to specify that "useful articles" are exempt from copyright protection to the extent that they include intrinsic utilitarian functions that cannot be separated from the aesthetic qualities of the work.[32] Again, such items

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26. Oliar, *supra* note 8, at 463–64.

27. *Id.*; U.S. CONST. art. I, § 8.

28. *Id. See also* Karl B. Lutz, *Patents and Science: A Clarification of the Patent Clause of the U.S. Constitution*, 18 GEO. WASH. L. REV. 50, 54 (1949) (arguing that patent law was implemented in order to promote the progress of the "useful Arts").

29. 17 U.S.C. § 102(a) (2012).

30. *Id.* § 102(b).

31. H.R. REP. NO. 94-1476, at 55–57 (1976), *as reprinted in* 1976 U.S.C.C.A.N. 5659, 5668–70 (indicating that the exceptions to copyrightability listed under section 102(b) are meant to preserve the basic dichotomy in copyright law where the expression of ideas is protected, but the underlying ideas themselves are not); NAT'L COMM'N ON NEW TECH. USES OF COPYRIGHTED WORKS, FINAL REPORT 20 (1978) (indicating that processes relating to how a computer program operates are protectable, if at all, under patent law, but are exempt from copyright protection).

32. 17 U.S.C. § 101 (2012) (defining "useful articles").

are the province of patent law, if any.[33]

Patent law picks up where copyright leaves off. The Patent Act stipulates that patents may be granted on "any new and useful process, machine, manufacture, or composition of matter," including improvements thereof, so long as the patent applicant meets all other statutory requirements of the Patent Act.[34] Patent law, therefore, aims to foster the development of new, useful, and inventive ideas by granting inventors exclusive rights in them.[35]

While some scholars have questioned this traditional bifurcation,[36] courts typically have not.[37] Of course, courts do not always bifurcate the constitutional purposes behind each body of law in their analyses. For instance, many cases point to the progress of both science *and* the useful arts as the purpose behind copyright or patent law or both.[38] Yet, because courts are interpreting distinct bodies of statutory law in their legal analyses, the different functions assigned to each body of law naturally direct those analyses. Indeed, to some extent Congress's separation of patent law from copyright law, and the statutory and common law limitations of each, requires as

33. H.R. REP. NO. 94-1476, at 55–57 (specifying that the useful article doctrine operates to prevent monopolization of functional works under copyright law).

34. 35 U.S.C. § 101 (2012).

35. An important caveat is that patents may not be granted to "abstract ideas," which are a common law exception to patentable subject matter. Instead, application of an abstract idea must include some "inventive step" in order to qualify as patentable subject matter. *See* Alice Corp. v. CLS Bank Int'l, 134 S. Ct. 2347 (2014).

36. Oliar, *supra* note 8, at 465–69.

37. In the U.S. Supreme Court's *Eldred v. Ashcroft* copyright decision, for instance, Justice Breyer in dissent indicated that copyright's purpose is to promote the progress of science, by which the framers meant "learning or knowledge." 537 U.S. 186, 243 (2003) (Breyer, J., dissenting) (citing E. WALTERSCHEID, THE NATURE OF THE INTELLECTUAL PROPERTY CLAUSE: A STUDY IN HISTORICAL PERSPECTIVE 125–26 (2002)); *see also* Interpart Corp. v. Italia, 777 F.2d 678, 684 (Fed. Cir. 1985) (indicating that patent law focuses on promoting the progress of useful arts by granting patent rights) *overruled on other grounds by* Midwest Indus., Inc. v. Karavan Trailers, Inc., 175 F.3d 1356 (Fed. Cir. 1999); *In re* Flint, 330 F.2d 363, 368 (C.C.P.A. 1964) (indicating that patent law's objective is to promote the useful arts).

38. *See, e.g.*, Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 477 (1984) (indicating that the purpose of copyright is to promote the progress of science and the useful arts); Woodbridge v. United States, 263 U.S. 50, 55 (1923) (indicating that the purpose behind patent law is to promote the progress of science and the useful arts).

much.

For instance, in the copyright realm, courts have relied on an idea-expression dichotomy in assessing which parts of a work are eligible for copyright protection.[39] In *Baker v. Selden*, the U.S. Supreme Court elaborated on this doctrine, holding that the ideas underlying the "useful art"—in this case, bookkeeping—were not eligible for copyright protection; only the author's original description of the ideas could obtain such protection.[40] The Court reasoned that patent law, not copyright law, may grant exclusive rights to such ideas.[41] In a later case, the Supreme Court again reasoned that, while patents may protect ideas and principles underlying inventions, copyright only protects the author's original expression of such ideas.[42]

Courts have developed a number of related doctrines under copyright law whose basic purpose is to help maintain this idea-expression dichotomy. For example, under the merger doctrine, courts prohibit copyright protection for the expression of ideas where only one or a limited number of ways to express that idea exist.[43] In such cases, the idea is said to merge with the expression, whereby copyright protection ceases.[44]

Relatedly, under the *scènes à faire* doctrine, courts deny copyright protection for certain elements of an otherwise original work where those elements are mandatory or typical in the treatment of a given topic.[45] For example, literature describing salmon will almost of necessity describe the many miles salmon swim, how they overcome waterfalls and hungry bears in their exoduses, and how some of them ultimately

39. *See, e.g.*, Alfred C. Yen, *A First Amendment Perspective on the Idea/Expression Dichotomy and Copyright in a Work's 'Total Concept and Feel,'* 38 EMORY L.J. 393, 395 (1989) (reviewing this doctrine generally).

40. 101 U.S. 99, 102, 104, 106 (1879).

41. *Id.* at 102–05.

42. Mazer v. Stein, 347 U.S. 201, 217 (1954).

43. *See* 4 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 13.03[B][3].

44. Herbert Rosenthal Jewelry Corp. v. Kalpakian, 446 F.2d 738, 742 (9th Cir. 1971) ("When the 'idea' and its 'expression' are thus inseparable, copying the 'expression' will not be barred, since protecting the 'expression' in such circumstances would confer a monopoly of the 'idea' upon the copyright owner free of the conditions and limitations imposed by the patent law.").

45. Michael D. Murray, *Copyright, Originality, and the End of the Scènes à Faire and Merger Doctrines for Visual Works*, 58 BAYLOR L. REV. 779, 781–84 (2006) (providing a summary of the doctrine and citing to cases applying it).

return to their original spawning pools.[46] These elements, even when employing the author's original expression to describe them, are not copyrightable because the underlying ideas are part of the public domain.[47] They are familiar, necessary ideas that others are free to employ in their own works relating to salmon.[48]

Patent law also reflects this traditional bifurcation in a number of ways. For instance, under patent law, technically only one patent is supposed to issue for any given inventive idea.[49] While patents may issue on inventive improvements to an underlying invention, the improver must still obtain rights from the original inventor in order to practice the underlying invention as part of their improvement.[50] Hence, unlike copyright law, where anyone is free to use ideas underlying a creative work, patent law reflects a different objective: protecting inventive ideas by granting exclusive rights to them.[51] And technically only one party is supposed to own a patent covering a distinct inventive idea, which patent that party can then use to prevent anyone else in the relevant jurisdiction from practicing inventive idea.[52]

Patent law's doctrine of equivalents is an additional measure that courts have developed in order to better protect inventive ideas under patent law.[53] For instance, if any subsequent inventor were able to circumvent a patented invention by substituting one or even a few inconsequential elements not explicitly covered in the patent claims, then the patent system and the incentives it is supposed to provide in

46. *Id.* at 793.

47. *Id.* at 793–94.

48. *Id.* at 791.

49. *See, e.g.*, Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1627–29 (2003) (discussing the problem of patent thickets, where overlapping patent rights may erroneously apply because of improvidently issued patents covering the same technology or through expansive application of patent law's doctrine of equivalents).

50. Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 80 (1994).

51. *See* 35 U.S.C. § 271 (2012) (laying out the basic exclusive rights of a patent holder).

52. *Id.*; Burk & Lemley, *supra* note 49.

53. Charles W. Adams, *The Doctrine of Equivalents: Becoming a Derelict on the Waters of Patent Law*, 84 NEB. L. REV. 1113, 1122–36 (2006) (providing a case-by-case summary of the doctrine's evolution).

promoting innovation may be rather hollow.[54] In order to address this concern, U.S. courts have over time developed the doctrine of equivalents in order to expand a patent's coverage beyond what the patent document may expressly cover.[55] While some fear that such a doctrine may in certain cases provide patent owners with excessive patent protection,[56] the doctrine has remained intact as a means of protecting patent owners from others being able to copy their patented inventive ideas simply because the patent owners lacked perfect foresight in drafting their patent applications.[57]

These doctrines thus make clear that one of patent law's primary objectives is to do what copyright law cannot: grant exclusive rights to ideas and principles underlying otherwise qualifying inventions. And in order to help ensure that patent law adequately protects such inventive ideas, courts have developed doctrines like the doctrine of equivalents as aids in achieving these objectives.

Interestingly, patent law does provide parties with the ability to claim exclusive rights in the design of goods that a patent applicant has developed.[58] Such rights come in the form of design patents, which, some argue, overlap with the rights and prerogatives of copyright law.[59] Indeed, design patents

54. See Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 77–78 (2004).

55. Adams, *supra* note 53.

56. *See, e.g.*, Michael J. Meurer & Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 GEO. L.J. 1947 (2005) (articulating an alternative theoretical justification for the doctrine of equivalents, which would mandate that the doctrine should apply as an exception rather than the rule, in order to better balance the benefits of patents with the potential harms that an unbridled doctrine of equivalents causes).

57. Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950) (stating that the doctrine "temper[s] unsparing logic and prevent[s] an infringer from stealing the benefits of an invention").

58. 35 U.S.C § 171 (2012) (setting forth the basic rights of a design patent holder).

59. Application of Yardley, 493 F.2d 1389, 1394 (C.C.P.A. 1974) (recognizing the overlap between copyright and design patents, but nonetheless holding that a party need not elect between the two). *See generally* Laura A. Heymann, *Overlapping Intellectual Property Doctrines: Election of Rights Versus Selection of Remedies*, 17 STAN. TECH. L. REV. 239 (2013) (describing the overlap between design patents and copyright generally); Viva R. Moffat, *Mutant Copyrights and Backdoor Patents: The Problem of Overlapping Intellectual Property Protection*, 19 BERKELEY TECH. L.J. 1473, 1518–20, 1530 (2004) (outlining the problems that arise from intellectual property law overlap and suggesting that only one form of

grant exclusive rights in the aesthetic, nonfunctional qualities of an article of manufacture, rather than the utilitarian ideas behind it.[60]

While design patents might be viewed as a form of legal hybridization between the two bodies of law, such a conclusion is questionable for at least two reasons. First, design patents only apply to articles of manufacture.[61] Copyright, conversely, applies much more broadly to a variety of different types of creative content.[62] Thus, even if the existence of design patents is viewed as a form of hybridization between copyright and patent law, it is a particularly narrow form thereof.

Second, and even more importantly for purposes of this Article, the overlap between design patents and copyright is not the type of legal hybridization that best fosters the interdependencies between creative and innovative activities that this Article explores in Part II below. Indeed, other scholars have noted that such overlapping protections can work at cross-purposes given that each set of rights includes different rights, exceptions, and limitations.[63] Thus, when multiple types of protection apply to any given form of expression, the public is deprived in some cases of the basic bargain that copyright and patent law, respectively, are supposed to provide.[64]

Copyright, for instance, includes the important "fair use" exception to infringement, which allows for a variety of uses of a copyrighted work despite such uses technically infringing the author's copyright rights.[65] But if the author of the copyrighted features also obtained a design patent covering the same features of the work, then the patent may bar uses of the work

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protection is likely necessary in order to incentivize creation of the expression).

60. Peter Lee & Madhavi Sunder, *Design Patents: Law Without Design*, 17 STAN. TECH. L. REV. 277, 281 (2013).

61. 35 U.S.C. § 171; Lee & Sunder, *supra* note 60, at 281.

62. *See* 17 U.S.C. § 102(a) (2012).

63. Moffat, *supra* note 59, at 1519–20.

64. *Id.*; *cf.* Mark P. McKenna, *An Alternate Approach to Channeling?* 51 WM. & MARY L. REV. 873 (2009) (discussing the problems of overlapping intellectual property protections for the same objects generally and suggesting that forcing intellectual property owners to elect among different types of protection may help avoid some of these problems).

65. *See, e.g.*, Michael W. Carroll, *Fixing Fair Use*, 85 N.C. L. REV. 1087, 1092 (2007).

that, under copyright law, may be deemed "fair uses" thereof.[66]

Hence, though design patents may provide additional incentives to create original designs, they may also upset the balance of rights and exceptions under copyright law that policymakers and the courts have deemed best meet the purposes of copyright. Such legal hybridization thus not only fails to foster interdependencies between creative and innovative activities that may otherwise exist, but in some cases may undermine them.

In sum, the patent-copyright dichotomy remains intact in most important respects. Relying on a traditional understanding of the Constitution's basic divide between copyright and patent law, Congress and the courts have perpetuated that split through legislative action and the development of common law doctrines. In the case of patent law, some overlapping protections exist in the form of design patents.[67] But such overlap may actually make the traditional divide less useful rather than successfully bridge it. The next sections turn to exploring how scholars have historically treated this divide in analyzing the relationship between copyright and patent laws.

B. Non-Hybridization Proposals

As Section I.B.1 below will examine, other scholars have argued in favor of various intellectual property law reforms that seek to improve the functioning of copyright and patent law by looking to the other body of law for doctrines and concepts. However, these proposals typically aim to improve the different bodies of intellectual property law in achieving their distinct purposes, rather than aiming to hybridize them. Hence, though in some cases the proposals appear promising,

66. Moffat, *supra* note 59, at 1519–20.

67. Trademark, another form of intellectual property protection, may also, in some cases, provide overlapping protections in cases where copyright and patent rights already exist, or even where those rights are not applicable or have expired. *See generally* Mark P. McKenna, *What's the Frequency, Kenneth? Channeling Doctrines in Trademark Law*, *in* 3 INTELLECTUAL PROPERTY AND INFORMATION WEALTH: ISSUES AND PRACTICES IN THE DIGITAL AGE 215 (2007). It is beyond the scope of the current Article to discuss whether trademark law should also be hybridized with patent and copyright law, though many of the reasons discussed in this Article justifying hybridization between copyright and patent law may also justify hybridizing trademark rights.

their objective falls short of hybridizing each of copyright and patent law in order to better facilitate the purposes of the other.

Section I.B.2 will then turn to other scholarly proposals that come closer to arguing in favor of hybridizing patent and copyright laws. However, as Section I.B.2 will demonstrate, these proposals often lack a coherent theory for why copyright should actively seek to foster inventive activity, or why patent law should be concerned with the purposes behind copyright law.

1. Maintaining the Dichotomy

In recent years, a growing number of intellectual property scholars have argued in favor of doctrinal borrowing between the different bodies of intellectual property law. For instance, several prominent scholars have recently argued that both patent law and trademark law could learn from copyright law in adopting some of its infringement standards.[68] Specifically, these scholars suggest that both patent law and trademark law would benefit by requiring intellectual property owners to show that an allegedly infringing work is both technically similar to their own from the perspective of an expert and that the allegedly infringing use causes market harm.[69] The authors point to copyright law, which does incorporate these principles at different points in a copyright infringement analysis, as a possible model for both patent and trademark law reform.[70]

Yet, though this recommendation may make some sense, its primary aim is not to hybridize the bodies of law in order to make patent and trademark law more conducive to the purposes of copyright law, and vice-versa. Instead, the proposal aims to make each body of law better equipped at achieving its own purposes.

Other scholarship often follows this general template for intellectual property law crossbreeding. For instance, another recent study argues that patent law would benefit by adopting "claiming elements" more typical in the copyright context.[71] In

68. Fromer & Lemley, *supra* note 18, at 1299–1301.
69. *Id.* at 1255.
70. *Id.* at 1299–1301.
71. Fromer, *supra* note 18.

other words, patent law as currently implemented often results in issued patents that fail to put the public on sufficient notice of what the patent covers, are excessively expensive to draft, and at times have negative impacts on later developed technologies.[72] This is so because patent law predominantly relies on a system of peripheral claiming by characteristic in order to provide the bounds of any given patent.[73] That is, patents attempt to delineate their bounds by listing the essential features of the covered invention. This delineation is then supposed to allow any member of the public to determine whether any particular embodiment falls within the patent scope.[74] But in practice, patents often fail in this quest, resulting in wasteful claim drafting exercises and in some cases deleterious effects on technologies developed after the patent claims were drafted.[75]

This study offers as a possible cure to this problem that patent law be tweaked to adopt the predominant claiming modes present in copyright law.[76] Copyright law's "central claiming" or "claiming by exemplar" system sets forth a prototypical member of a class of things that is clearly protected under the relevant legal regime. Other embodiments are then compared to that prototype in order to determine whether it is similar enough to also fall within the same set of rights.[77] Although some instances of this type of claiming already exist in patent law, patent law would benefit, according to this study, by relying on central claiming more frequently.[78]

But again, the objective in proposing this type of intellectual property law reform is not to explicitly foster the purposes of copyright law under patent law. Instead, the proposal's aim is to make patent law better at doing its job of promoting inventive innovation.[79]

Over the years, several scholars have argued that patent law would benefit by adopting a "fair use" type of defense

72. *Id.* at 726–27, 772–75.
73. *Id.* at 772.
74. *Id.*
75. *Id.* at 772–75.
76. *Id.* at 775–81.
77. *Id.* at 726–27.
78. *Id.* at 775–81.
79. *Id.* at 772.

similar to what copyright law includes.[80] Copyright law's "fair use" defense to copyright infringement privileges certain types of uses that otherwise technically infringe an author's rights under copyright.[81] Such uses are "privileged" because they tend to further the purposes of copyright and thus deserve, from a public policy standpoint, special consideration.[82]

Scholars in favor of a patent fair use exception to patent infringement argue that such an exception could play a similar role under patent law.[83] That is, providing for a fair use defense to patent infringement could allow patent law to respond more flexibly to a variety of scenarios where patent law as currently applied often results in excessively harsh results on users of patented inventions.[84]

Nevertheless, the purpose behind such a move is to better account for changes in the marketplace that may make patents less relevant or difficult to license, rather than to foster the purposes of copyright—even if promoting the purposes of copyright is a side benefit of such a reform.[85] In short, such proposals seek to improve patent law in achieving its own purposes, not to improve its capacity to meet the objectives of copyright.

Several scholars, including the author of this Article, have also advocated that patent law adopt another copyright law tenet: an independent development defense to infringement.[86] Under copyright law, if two authors independently create the same or similar original works of authorship, one of those authors cannot sue the other for copyright infringement, even if she authored the work well before the other.[87] So long as the

80. *See, e.g.*, O'Rourke, *supra* note 18 (proposing a fair use exception for patent law); Strandburg, *supra* note 18 (same).

81. *See, e.g.*, Carroll, *supra* note 65.

82. Traditional categories of uses that have qualified as fair use under copyright include using copyrighted works for purposes of criticism, news reporting, parody, teaching, scholarship, and research. *More Information on Fair Use*, U.S. COPYRIGHT OFF., http://copyright.gov/fair-use/more-info.html [http://perma.cc/JRT4-XLSV].

83. Strandburg, *supra* note 18, at 279–87.

84. *Id.* at 292.

85. *Id.* at 293–96.

86. Vermont, *supra* note 18, at 484–89 (2006) (advocating for adoption of an independent invention defense to patent infringement); Clark D. Asay, *Enabling Patentless Innovation*, 74 MD. L. REV. 431, 487–94 (2015) (proposing a conditional independent invention defense to patent infringement).

87. *See* Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*,

other author actually independently created the work, she is not subject to copyright liability, even if the works somehow happened to be identical.[88]

But under patent law, independent inventors enjoy no such liability shield. Even if Inventor B simultaneously develops an invention that Inventor A happens to patent before Inventor B, Inventor B in most cases will be subject to remedies under patent law should inventor A elect to sue her.[89] Some view this result as harsh, particularly because so much inventive activity appears to be pursued simultaneously by multiple parties.[90] Several scholars thus argue that patent law, similar to copyright law, would be well served adopting some form of an independent invention defense to patent infringement.[91]

The overarching concern in such proposals, however, is to improve patent law's role in facilitating inventive activity. In other words, the phenomenon of simultaneous invention by multiple actors may suggest that weaker patent rights still provide sufficient incentives to bring about the invention. And one way to weaken patent rights and thereby address this phenomenon is to adopt from copyright and trade secret law an independent invention defense to an infringement claim. But while this author and others believe that such intellectual property borrowing is a good idea, it is not the hybridization idea animating this Article.

The above examples are only a partial list of some recent studies comparing and contrasting the different bodies of intellectual property law.[92] Such proposals may have much to

87 N.C. L. REV. 1421, 1426–28 (2009) (reviewing this approach under copyright law). *See generally* 17 U.S.C. § 501(a) (2012) (defining infringement).

88. *See* Cotropia & Lemley, *supra* note 87, at 1421–22.

89. *Id.*; *see also* ROGER E. SCHECHTER & JOHN R. THOMAS, PRINCIPLES OF PATENT LAW 275 (2d ed. 2004).

90. Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 712–33 (2012) (reviewing various studies that suggest that simultaneous invention by multiple parties is the norm rather than the exception).

91. Vermont, *supra* note 18; Asay, *supra* note 86.

92. Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1069–71 (1997) (suggesting that copyright law may become more efficient in facilitating improvements to copyrighted works by adopting the concept of "blocking patents" that exists under patent law into the copyright corpus); Irina Manta, *Reasonable Copyright*, 53 B.C. L. REV. 1303, 1346–54 (2012) (arguing that copyright law might be improved by adopting certain tenets of trademark law when assessing copyright infringement claims); Simone A. Rose, *On Purple Pills, Stem Cells, and Other Market Failures: A Case*

offer, and a comparative approach to intellectual property law makes some sense given the common roots that the different bodies of intellectual property law share in certain cases.[93] But these proposals that draw in part on those common roots still primarily seek to foster the distinct fruits of each body of intellectual property law. That general approach makes sense given how the Constitution's Intellectual Property Clause has traditionally been interpreted and translated into distinct bodies of intellectual property law with discrete objectives. But the objectives of patent and copyright law need not be viewed in isolation and, indeed, are best realized by taking each other into account.

2. Breaking Down the Dichotomy?

Some recent proposals have inched closer to bridging the gap between patent and copyright laws. That is, some scholars have pointed to the negative effects that copyright law has on innovation, and have argued for a number of copyright law reform measures aimed at ameliorating such effects.[94] For instance, some of these proposals stress the debilitating effects of vagueness in copyright law.[95] Accordingly, removing some of this vagueness, or limiting copyright's more severe remedies that copyright holders exploit on the basis of the law's vagueness, would go a long way in addressing copyright law's negative effects on innovation.[96]

Other scholars have made similar arguments. For instance, one recent study points out that different speech distribution technologies receive disparate treatment under copyright law and suggests that this disparate treatment slows

for a Limited Compulsory Licensing Scheme for Patent Property, 48 HOW. L.J. 579 (2005) (arguing that patent law would be well served by adopting some form of compulsory licensing similar to what copyright currently includes).

93. *See generally* Oliar, *supra* note 8 (discussing the history and interpretation of the Constitution's Intellectual Property clause).

94. *See generally* Carrier, *supra* note 16 (discussing how certain copyright law decisions have negatively affected the pace and direction of technological innovation); DiCola, *supra* note 19, (setting forth a number of proposed reforms to copyright law that may help foster innovation).

95. *See, e.g.*, Michael A. Carrier, *Copyright and Innovation: Responses to Marks, Masnick, and Picker*, 2013 WIS. L. REV. ONLINE 47, 57–58.

96. *Id.* at 57–59.

innovation for such technologies.[97] It thus proposes equal treatment for the various distribution technologies, so as to avoid slowing innovation, and articulates an equality principle based on both economic efficiency and First Amendment principles relating to free speech.[98]

Another recent study argues that copyright law has significant effects on the licensing, development, and use of various technologies, and thus urges policy makers to consider these effects in structuring copyright law reforms.[99] Hence, one implication of this argument is that copyright law should be concerned with facilitating not only expressive activities, but innovative ones as well.

Other scholarship manifests similar concerns.[100] For instance, on the basis of the negative effects that copyright law may have on technological innovation, one recent proposal argues in favor of modifying the fair use defense to copyright infringement by incorporating more factors relevant to technological innovation.[101] This modified version of fair use, titled "technological fair use," would enable copyright law to respond more flexibly to innovative activities.[102] Others have raised the issue of how fair use should be applied in technology cases as well.[103]

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97. DiCola, *supra* 19, at 1845–77.

98. *Id.* at 1881–1902.

99. Peter DiCola & David Touve, *Licensing in the Shadow of Copyright*, 17 STAN. TECH. L. REV. 397 (2014).

100. Lee, *supra* note 16.

101. *Id.* at 832–55.

102. *Id.*

103. *See, e.g.*, Paul Goldstein, *Fair Use in Context*, 31 COLUM. J.L. & ARTS 433, 438–41 (2008); Mark A. Lemley & R. Anthony Reese, *Reducing Digital Copyright Infringement Without Restricting Innovation*, 56 STAN. L. REV. 1345, 1410–25 (2004) (proposing the use of a dispute resolution system to handle digital copyright infringement, with a defense built in for arguable fair use); Joseph P. Liu, *Two-Factor Fair Use?*, 31 COLUM. J.L. & ARTS 571 (2008) (proposing to only apply the first and fourth fair use factors to new digital technology cases); Adrienne J. Marsh, *Fair Use and New Technology: The Appropriate Standards to Apply*, 5 CARDOZO L. REV. 635 (1984); Pamela Samuelson, *Fair Use for Computer Programs and Other Copyrightable Works in Digital Form: The Implications of Sony, Galoob and Sega*, 1 J. INTELL. PROP. L. 49, 73–86 (1993); Pamela Samuelson, *Unbundling Fair Uses*, 77 FORDHAM L. REV. 2537, 2602–15 (2009) [hereinafter Samuelson, *Unbundling*]; Sigmund Timberg, *A Modernized Fair Use Code for the Electronic as Well as the Gutenberg Age*, 75 NW. U. L. REV. 193 (1980); Note, *Toward a Unified Theory of Copyright Infringement for an Advanced Technological Era*, 96 HARV. L. REV. 450, 454–60 (1982).

Courts have also explicitly acknowledged the interplay between copyright law and innovation. For instance, in the landmark U.S. Supreme Court *Grokster* case, the Court addressed whether peer-to-peer software distributors could be secondarily liable for copyright infringement on the basis of users of the software infringing copyrighted materials.[104] In its analysis, the Court explicitly acknowledged "concern that imposing liability, not only on infringers but on distributors of software based on its potential for unlawful use, could limit further development of beneficial technologies."[105]

Yet none of these proposals argue that copyright law should explicitly incorporate the traditionally distinct purposes of patent law, and vice-versa.[106] Instead, they propose reforming copyright law in order to avoid impeding innovation, and they do so on the general notion that innovation is a positive thing that society should avoid hindering when possible.[107] But copyright law, even under their proposals, carries with it no authoritative mandate to actively foster inventive innovation. And clearly articulating that authority would change the approach from simply seeking to avoid impeding innovation to a requirement under copyright law to positively promote it. These scholars thus maintain the traditional dichotomy between copyright and patent law while arguing, essentially, against some of its negative effects.

The more straightforward approach, however, is to recognize that inventive innovation is not the sole province of patent law, nor is original expression the sole province of copyright law. Instead, the two bodies of law and the purposes that they are meant to promote are so intertwined that the more appropriate solution is to explicitly reflect those realities in the law itself.

Some of the proposals discussed above do point to First Amendment free speech values as a constitutional basis

104. Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913 (2005).

105. *Id.* at 929.

106. Lee, *surpa* note 16, at 820–22 (noting that his proposal has the advantage of promoting the traditionally distinct purposes of patent law, but falling short of arguing that copyright has a duty to do so). *See also* Brad A. Greenberg, *Copyright Trolls and Presumptively Fair Uses*, 85 U. COLO. L. REV. 53, 89 (2014) (indicating that copyright law has long aimed to protect authors' rights without unduly stifling technological innovation).

107. Greenberg, *supra* note 106.

supporting their proposals.[108] In other words, much of the innovation that copyright law purportedly impedes relates to technologies that foster speech. Therefore, when copyright law has such effects, Congress should change the law on the basis of First Amendment values in order to better foster innovation that supports speech.

Emphasizing the First Amendment in such efforts certainly has merit. First Amendment free speech values are deeply embedded in U.S. society and thus demand significant deference when they are implicated in any legal issue.[109] Indeed, it may add yet another reason to pierce the traditional dichotomy between patent and copyright law. But on its own, the First Amendment may not be sufficient to jettison the dichotomy, particularly where it is competing with another constitutional provision—the Intellectual Property Clause—and where not all technologies deserving of intellectual property law hybridization may implicate First Amendment values.

In sum, the clearer route to reforming copyright law in order to better foster innovation lies in partially bridging the traditional dichotomy between copyright law and patent law and the purposes behind each. That is, copyright law should not seek to simply avoid impeding innovation, but instead should more expressly aim to foster it. And patent law should seek to promote original expression as one of its primary purposes. The next Part provides more detailed reasons in support of such hybridization.

II. THE INTERRELATIONSHIPS BETWEEN CREATIVITY AND INVENTION

As Section II.A below will illustrate, mounting evidence makes clear that creative activity significantly affects the pace

108. DiCola, *supra* note 19, at 1881–94; Lee, *supra* note 16, at 813–18.

109. *See, e.g.*, Abrams v. United States, 250 U.S. 616, 630 (1919) (Holmes, J., dissenting) (arguing that "the ultimate good desired is better reached by free trade in ideas"); *see also* Terrance Sandalow, *Opening Address: Equality and Freedom of Speech*, 21 OHIO N.U. L. REV. 831, 831–32 (1995) (noting that the "importance of the wide range of freedoms we now associate with the First Amendment is so deeply embedded in the contemporary American psyche that many forget that the establishment of those freedoms is almost entirely the work of the twentieth century").

and direction of innovation, and vice-versa. That one affects the other is certainly not a new story.[110] But that story has become more compelling as new research has more closely examined the relationship. Furthermore, related research examined in Section II.B below suggests that separating creativity from inventive activity may be a fool's errand given the interdependent relationship between the two. All of this suggests that the traditional attempt to strongly bifurcate the two bodies of law meant to foster creativity and inventive innovation—copyright and patent law, respectively—may be, in important respects, misguided.

Indeed, other recent research, reviewed in Section II.C below, argues that the historical interpretation of the Constitution's Intellectual Property Clause that led to this legislative and judicial bifurcation in the first place may have been misinterpreted all along. In light of the interdependent and inseparable realities of creative and innovative activities, this new reading of the Intellectual Property Clause may well be the better interpretation—or at least the one that best supports the societal benefits that intellectual property law is meant to provide, as Section II.D will argue.

A. The Interdependent Nature of Creativity and Innovation

Several recent studies have examined the growing interrelationship between creative and innovative activities. For instance, one study examined the relationship in light of a district court ruling holding that a peer-to-peer file-sharing service, Napster, infringed copyright law.[111] In order to better assess the effects that this ruling had on the pace and direction of the technological innovation that the ruling implicated, the study's author conducted extensive interviews after the decision with technology company executives, leaders within the recording industry, and the heads of venture capital

110. Randal C. Picker, *Copyright and Technology: Déjà Vu All Over Again*, 2013 WIS. L. REV. ONLINE 41 (indicating that the story of copyright affecting innovation, and vice-versa, is old news).

111. Carrier, *supra* note 16, at 901–05; *see also* A&M Records, Inc. v. Napster, Inc., 114 F. Supp. 2d 896, 900–01 (N.D. Cal. 2000), *aff'd in part and rev'd on other grounds*, 239 F.3d 1004 (9th Cir. 2001).

firms.[112] The study found a significant negative effect, meaning that the ruling appeared to impede technological innovation.[113] Others contest these findings, asserting that the relationship between innovation and creative output has been and remains a productive one.[114] But regardless of with whom one agrees, that a significant and growing relationship exists between creative output and technological innovation is not in question.

Others have also recently written about the interrelationship between creative and inventive activities and the laws meant to support each.[115] One study notes, for instance, that patent law has a long history of allowing for "inventing around" patented inventions.[116] The study finds that a similar phenomenon is increasingly prevalent in the world of copyright law, where technology companies innovate around copyright law in an attempt to meet its demands.[117] It goes on to assess the possible benefits and detriments of this phenomenon.[118] But implicit in this analysis is an acknowledgement of the growing interplay between copyright law, creative activity, and their effects on potentially patentable innovations.

Copyright historians have also chronicled the dynamic between creativity and innovation extensively.[119] For instance, copyright law has grown over time to encompass items that were originally outside the explicit scope of copyright, such as photographs, motion pictures, and sound recordings.[120] Thus, as technological innovation resulted in new types of content, copyright law over time responded by incorporating them within its ambit.[121] In other words, innovation and its effects on creative activity and copyright law is a long-standing phenomenon.

But in the digital world, where technological innovation

112. Carrier, *supra* note 16, at 893–95.
113. *Id.* at 908–14.
114. Steven M. Marks, *Debunking the "Stifling Innovation" Myth: The Music Business's Successful Transition to Digital*, 2013 WIS. L. REV. ONLINE 21 (largely contesting Carrier's findings).
115. Dan L. Burk, *Inventing Around Copyright*, 109 NW. U. L. R. 547 (2015).
116. *Id.* at 551–55.
117. *Id.*
118. *Id.* at 555–60.
119. JESSICA LITMAN, DIGITAL COPYRIGHT 11–19 (2001).
120. *Id.* at 22–24, 106–07.
121. *Id.*

has enabled more and more access to and creation of a variety of different types of content, the interplay between technological innovation and creative activity may be even more pronounced, sometimes perhaps in deleterious ways.[122] Indeed, laws such as the Digital Millennium Copyright Act and other related legislative proposals in recent years provide evidence that, at least in the estimation of some, innovative activities are putting increasing pressure on creative activities and the law—copyright—that is meant to safeguard them.[123] While parties dispute whether technological innovation threatens or boosts creative activity, growing attention to the dynamic carries with it an implicit acknowledgement that the dynamic is increasingly prevalent and significant.

I have also recently written about the interdependencies between creative and innovative activities.[124] In this previous work, I point to a number of examples showing that creative output spurs technological innovation, which in turn triggers more creative output.[125] For instance, innovation in mobile computing over the last decade has been significantly motivated by a desire on the part of technology companies to take advantage of the commercial possibilities associated with copyrighted content.[126] The resulting technological innovations in turn have helped spur a significant increase in the amount and variety of content available.[127] Similarly, companies such as Apple, Amazon, Google, Aereo, and Netflix have developed technological products aimed at monetizing copyrighted content, which in turn has facilitated the creation of and access

122. *See, e.g.*, Alfred C. Yen, *What Federal Gun Control Can Teach Us About the DMCA's Anti-Trafficking Provisions*, 2003 WIS. L. REV. 649, 668–79 (laying out the basics of the Digital Millennium Copyright Act of 1998, an act meant to help address growing copyright infringement in the digital age, and arguing against many of its provisions as excessive). *But see* Mark A. Lemley, *Is the Sky Falling on the Content Industries?*, 9 J. TELECOMM. & HIGH TECH. L. 125, 125–32 (2011) (arguing that technological innovation generally benefits the content industries rather than harms them).

123. *See, e.g.*, Michael A. Carrier, *SOPA, PIPA, ACTA, TPP: An Alphabet Soup of Innovation-Stifling Copyright Legislation and Agreements*, 11 NW. J. TECH. & INTELL. PROP. 21 (2013) (detailing several recent copyright proposals that, in Carrier's view, stifle innovation).

124. *See, e.g.*, Clark D. Asay, *Copyright's Technological Interdependencies*, 18 STAN. TECH. L. REV. 189 (2015).

125. *Id.* at 195.

126. *Id.* at 200–02.

127. *Id.*

to such content, including in some cases these companies actively subsidizing content development.[128]

Hence, while the interdependencies between innovative and creative activities are far from flawless, it becomes increasingly difficult to deny their growing significance.[129] And on this basis, it makes some intuitive sense that the primary bodies of law meant to facilitate creative and innovative activities—copyright and patent law—should better take into account and facilitate such interdependencies. In stark contrast, however, copyright and patent laws appear fixated on preserving the traditional divide between the two bodies of law.

B. The Inseparable Nature of Creativity and Innovation

The previous Section discussed how creative and innovative activities often fuel each other and suggested, on this basis, that copyright and patent law would do well to better take into account these interdependencies through intellectual property law hybridization. This Section reviews another basis for such intellectual property law hybridization: the often inseparable nature of creative and innovative activities. In other words, if credibly distinguishing between "creativity" and "invention" is near impossible in some cases, as some of the research discussed below suggests, then both copyright and patent law should better recognize that reality through hybridization.

To illustrate: recent research suggests that the attempt to divvy up creativity and inventive innovation into neat buckets is often a difficult, if not impossible, task.[130] That is, where copyrightable creativity ends and patentable innovation starts is in some cases an arbitrary cutoff. This is so in part because from a neurological, psychological, and cultural perspective, the same creative processes that lead to copyrightable material may underlie inventive activity as well.[131] Indeed, these line-

128. *Id.* at 205.

129. *Id.* at 212.

130. *See* Mandel, *supra* note 21, at 285–86. (reviewing psychological, neurobiological, and cultural research that suggests that artists and inventors both rely on the same creative faculties in producing new works, and arguing on this basis that joint inventor and joint authorship laws under patent and copyright law, respectively, should more be similar than they actually are).

131. *Id.*

drawing difficulties become even clearer when attempting to make such a delineation in certain domains, such as software. As such, hybridizing patent and copyright law in order to better reflect the porous natures of creativity and invention may be justified in certain cases.

For instance, some scholars have examined the role that creativity, as defined by modern psychological research, plays in intellectual property law doctrine generally.[132] Some of these studies point out that several requirements under both patent and copyright law rely on creativity.[133] Patent law requires that an invention be both novel and non-obvious in order to qualify for patent protection.[134] The novelty requirement generally means that the invention as a whole does not already exist in the prior art,[135] while the non-obviousness requirement means that the invention cannot be an obvious improvement or change to something that already exists.[136] And under copyright law, a new work must be "original"—or independently created by the author with at least some amount of creativity—in order to qualify for copyright protection.[137]

Hence, under both bodies of law, some level of creativity is required in order to satisfy independent requirements under each. Indeed, another recent study reviews neurobiological, psychological, and cultural research that suggests that the same creative processes that result in copyrightable artistic works underlie inventive activities as well.[138]

Yet copyright and patent laws each impose uniform creativity standards that fail to take into account this modern

132. *See, e.g.*, Gregory N. Mandel, *To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity*, 86 NOTRE DAME L. REV. 1999 (2011); Reuveni, *supra* note 21 (arguing that copyright law fails to take into account modern neuroscience and psychology research on how creativity occurs and suggesting how it may).

133. Mandel, *supra* note 132, at 2002–03, 2012–13.

134. 35 U.S.C. §§ 102–103 (2012) (setting forth the novelty and non-obviousness requirements under patent law).

135. *See generally* Mark A. Lemley, *Point of Novelty*, 105 NW. U. L. REV. 1253 (2011) (discussing the novelty doctrine generally under 35 U.S.C. § 102).

136. *See generally* Glynn S. Lunney, Jr. & Christian T. Johnson, *Not So Obvious After All: Patent Law's Nonobviousness Requirement, KSR, and the Fear of Hindsight Bias*, 47 GA. L. REV. 41 (2012) (discussing the development of the obviousness requirement under patent law generally).

137. *See* Gideon Parchomovsky & Alex Stein, *Originality*, 95 VA. L. REV. 1505, 1505–07 (2009).

138. Mandel, *supra* note 21, at 331–43.

research, which provides key insights about the nature of creativity and how it may differ depending on the context.[139] In other words, creativity is often a multifaceted process that does not fit neatly into the buckets that patent and copyright law seek to place it. Hence, although copyright law may require a form of "innovative creativity" in order to satisfy its mandates, and patent law a form of "creative innovation," in fact neither body of law adequately assesses and incorporates key new insights from neurobiological, psychological, and cultural research on creativity.[140]

But the key point for purposes of this Article is that creativity and inventiveness are so interfused and multifaceted as to make cleanly separating them under either patent or copyright law difficult. Invention requires creativity, and creativity requires invention.[141] In some cases the bifurcation between patent and copyright laws serves useful purposes. But in others the arbitrary cutoff between copyrightable creativity and patentable invention—and which rights thus attach to the activity—may actually cause more harm than good.[142] Hybridizing the bodies of law in order to better account for these interdependent realities thus seems justified. And, as discussed in Part III below, adjusting certain remedies and defenses under each body of law is one promising way to avoid imposing an artificial, and in some cases creativity- and invention-inhibiting, simplicity on the multifaceted realities of creativity and invention.

Other scholars have recently conducted studies that support these insights in important respects. For instance, several scholars have recently examined the differing creativity

139. Mandel, *supra* note 132, at 2007, 2012–13. *But see* DAN L. BURK & MARK A. LEMLEY, THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT 167–70 (2009) (arguing that courts should treat different technology sectors differently in terms of patent law in order to elide significant hindrances to innovation that the current patent system causes).

140. *See also* Joseph P. Fishman, *Creating Around Copyright*, 128 HARV. L. REV. 1333, 1333–40 (2015) (pointing to psychological research that highlights generative benefits of particular copyright law doctrines that others have often discounted).

141. Mandel, *supra* note 21, at 331–43; Mandel, *supra* note 132, at 2006–07.

142. *See, e.g.*, Parchomovsky & Stein, *supra* note 137 (proposing that copyright law be altered in order to take into account the differing levels of creativity required for various types of works, and thereby seeking to address some of the possibly deleterious effects of copyright's low creativity threshold).

thresholds required under both patent and copyright law before something is deemed creative enough under each for legal protection.[143] They seek, among other things, to assess in light of four original experiments whether copyright and patent law could be improved by adjusting their respective creativity requirements.[144] A starting point for their research, therefore, is that both patent and copyright law require creativity, with patent law generally imposing a more demanding creativity standard than the relatively lax standards of copyright.[145]

These scholars also note that the types and amounts of creativity required for different kinds of works, whether traditionally protected under copyright or patent law, vary significantly—and not always in the direction upon which each body of law is premised.[146] This view of creativity as multifaceted and context-specific thus aligns with the previous studies reviewed above in important respects, as well as the arguments of this Article.[147] That is, even assuming that each body of law in many cases requires the appropriate level of creativity before rights are granted, in other cases it may not. Thus, copyright and patent law may be both under- and over-inclusive in their coverage. And that mis-calibrated coverage may in some cases end up undermining the purposes of patent law, copyright law, or both.

1. Backdoor Patents and Copyrights

Another way to think about this problem is to think of creativity plotted out on a spectrum, where patent law sits at the high end of the spectrum and copyright on the lower end thereof. In addition to the concern that each body of law's generality leads to over- and under-inclusiveness, other significant implications arise. For instance, even assuming patent law's higher threshold for creativity is generally

143. Christopher Buccafusco et al., *Experimental Tests of Intellectual Property Laws' Creativity Thresholds*, 92 TEX. L. REV. 1921 (2014).

144. *Id.* at 1922–23.

145. *Id.* at 1921.

146. *Id.* at 1922. *See generally* Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441, 1456–83 (2010) (utilizing the psychology of creativity to analyze the differences in protectability standards between patent and copyright law).

147. *See* Mandel, *supra* note 132.

justified, a patent grant may allow the patent holder to exclude not only other inventive activity that is traditionally the province of patent law, but also creativity that is traditionally the province of copyright law.

For instance, if a party owns a patent on some software invention, that party has the right to prevent third parties from practicing the invention, including writing and using otherwise copyrightable software code that implements the invention.[148] This remains true even if the third party's software code is otherwise quite different from the patent holder's software code that implements the invention, and even if the software includes greater amounts of creativity than the patented invention.[149]

Hence, while many have worried over the years about patents granting excessive control in ways that harm other would-be inventors, commentators seem to have been less concerned about patent law's scope hindering copyright's purposes.[150] And part of that lack of concern is likely attributable to the traditional bifurcation between patent and copyright law. But the tightly intertwined nature of creativity and inventive activities suggests that in many cases this bifurcation could be more damaging than previously thought.

In contrast, as discussed, commentators have worried over the years about copyright law's impact on innovation.[151] This creativity spectrum view of the world adds credence to those concerns. After all, if owners of copyrighted materials are able to assert copyright law in ways that inhibit higher levels of creativity required for patent-eligible innovation (what some have called "backdoor patents"),[152] then copyright law may in some cases significantly impede the utilitarian purposes of patent law.

148. *See* 35 U.S.C. § 271 (2012) (setting forth the rights of patent holders).

149. *Id.* (making no exceptions to patent infringement on the basis of the infringing work being copyrighted, regardless of how creative the work might be).

150. In fact, I have not been able to locate even a single major study whose focus is to explicitly address patent law's potentially deleterious effects on the purposes of copyright law.

151. *See infra* Part II.A.

152. *See generally* Moffat, *supra* note 59.

2. Software as Bifurcation's Problem Child

A software example may help better illustrate some of these concerns. Software is eligible for both copyright and patent law protection.[153] Software thus earns copyright protection even for minimal creative efforts, while also potentially deserving patent protection when it meets patent law's higher creativity threshold. Consequently, some piece of software may obtain copyright protection, even though only minimal creativity was required before it obtained this protection.[154] Because of this, a third party wishing to use the software in ways that require a greater amount of creativity (i.e., the amount required under patent law) may be barred from doing so. Naturally, the third party could simply seek a license from the copyright owner, which may address this issue in many cases. But holdout issues or an unreasonable licensor, among other problems, may prevent that outcome.[155] And as a result, society may suffer as it is deprived of the additional innovative use of the software.

The utilitarian nature of software exacerbates these concerns. That is, software is generally created with the aim of enabling a computing device to run efficiently.[156] Its primary aim, therefore, is to provide a utilitarian solution to some sort of computing problem. Patent law has traditionally been viewed as the appropriate body of law for encouraging and protecting such utilitarian ideas.[157] Yet, because even utilitarian ideas require some level of creativity to develop, software qualifies for copyright protection as well. As a result, courts have struggled to define exactly what is copyrightable

153. Grant C. Yang, *The Continuing Debate of Software Patents and the Open Source Movement*, 13 TEX. INTELL. PROP. L.J. 171, 192–202 (2005) (reviewing the history of this dual protection).

154. John R. Ackermann, *Toward Open Source Hardware*, 34 U. DAYTON L. REV. 183, 198–99 (2009) (discussing the low threshold for copyright protection).

155. Peter DiCola & Matthew Sag, *An Information-Gathering Approach to Copyright Policy*, 34 CARDOZO L. REV. 173, 178–79 (2012) (reviewing holdout and other related problems in copyright licensing scenarios).

156. Robert Plotkin, *Computer Programming and the Automation of Invention: A Case for Software Patent Reform*, 2003 UCLA J.L. & TECH. 7, http://www.lawtechjournal.com/articles/2003/07_040127_plotkin.pdf [http://perma.cc/BHJ8-GC74] (providing an extensive definition and discussion of what constitutes "software" and the purposes behind it).

157. See *supra* Section I.A for an extensive discussion of this point.

and what is not in the utilitarian world of software.[158] And that uncertainty has almost undoubtedly in some cases inhibited both copyrightable expression and patentable invention in software development.[159]

Indeed, as mentioned above, copyright's low creativity requirement also means that copyright holders of software programs can in some cases use copyright as a cheaper, more easily obtained proxy for patent rights, what some have called backdoor patents.[160] Even though rights under copyright are generally weaker than those of patent,[161] they are nonetheless sufficient to restrict access to the works in cases where that result might impede, rather than foster, creative innovation.[162]

When some software solution obtains patent protection, similar concerns with creativity line-drawing and inhibition arise. For instance, as briefly mentioned above, a patented software invention may allow the patent holder to inhibit not only other high-creativity patentable inventions, but low-creativity copyrightable works as well. Indeed, the patent holder is able to exclude others from practicing the software invention, even in cases where the party has written their own copyrightable software code that implements the invention; that is, the patent holder's patent covers all copyrightable works that implement the invention, not just their own.[163] And

158. *See, e.g.*, Pamela Samuelson, *The Strange Odyssey of Software Interfaces and Intellectual Property Law* (Univ. Cal. Berkeley Public Ctr. for Law Research & Tech., Paper No. 132381859, 2008), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1323818 [http://perma.cc/MG87-5F4H] (tracing the evolution of intellectual property law protection for software application programming interfaces); Pamela Samuelson, *Are APIs Patent or Copyright Subject Matter?*, PATENTLYO (May 12, 2014), http://patentlyo.com/patent/2014/05/copyright-subject-matter.html [http://perma.cc/E44M-S5Z4] (reviewing some of the leading cases that seek to address these problems).

159. *See, e.g.*, Pamela Samuelson, *Are Patents on Interfaces Impeding Interoperability?*, 93 MINN. L. REV. 1943, 2004–18 (2009) (suggesting that patent protection for software interfaces has not had as deleterious effects as some have suggested, but also arguing that some additional reforms would be worthwhile in order to ensure that software development remains robust).

160. *See* Moffat, *supra* note 59, at 1523–24.

161. For instance, copyright law includes an independent creation defense to copyright infringement, whereas patent law does not. *See generally* Vermont, *supra* note 18, at 480–81.

162. *See* Moffat, *supra* note 59, at 1523–24.

163. Indeed, the rights granted under patent law do not take into consideration whether the infringing party has a copyright interest in the allegedly infringing work. *See* 35 U.S.C. § 271 (2012) (setting forth the rights of patent holders).

again, while parties may be able to obtain the appropriate licenses from the patent holder, they may not be able to for a variety of reasons.[164] For instance, their low-level creative activities may not generate sufficient revenues to pay for the necessary rights to practice the patented invention.

These concerns are even more troubling since some patentable inventions may not actually require much creativity. In other words, even if, in general and in the abstract, patent law's creativity requirements are set high, it can be the case that the amount of creativity required is low and still sufficient to technically satisfy the patent statute.[165] This is a common complaint of many software patents, and partially on this basis some have argued that patent law's requirements should be heightened in the case of software patents.[166] Or, as others suggest, software patents should be abolished altogether.[167]

3. Summary

In sum, much current research suggests that creative and inventive processes are so multi-faceted and intertwined as to render it difficult to easily categorize which levels of creativity

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164. *See generally* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007) (discussing the problem of patent holdup, where the possibility of injunctive relief may unduly increase a patent holder's bargaining leverage in licensing transactions).

165. For instance, accidental discoveries are no bar to patentability, in which cases very little creative effort may have been exerted. *See generally* Sean B. Seymore, *Serendipity*, 88 N.C. L. REV. 185 (2009) (reviewing the role that accident plays under patent law).

166. *See, e.g.*, BURK & LEMLEY, *supra* note 139, at 158–59 (arguing that patents related to software-implemented inventions should generally include heightened disclosure requirements in order to help narrow their otherwise overly broad scope); Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905 (arguing that a primary problem with software patents is that they are drafted to cover functions rather than the specific software invention, and suggesting courts can correct this problem by limiting software claims to the means described in the patent specification of implementing the function).

167. *See, e.g.*, Michele Boldrin & David K. Levine, *The Case Against Patents*, 27 J. ECON. PERSP. 3, 3–4 (2013), http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.27.1.3 [http://perma.cc/XD63-XDW7]; Vivek Wadhwa, *Why We Need to Abolish Software Patents*, TECHCRUNCH (Aug. 7, 2010), http://techcrunch.com/2010/08/07/why-we-need-to-abolish-software-patents/ [http://perma.cc/9ADM-NDK3]; END SOFTWARE PATENTS, http://endsoftpatents.org/ [http://perma.cc/W2WH-BW4T].

deserve what type of intellectual property law protection. The software context discussed above highlights some of these difficulties. This is not to say that copyright and patent law should simply be fused as one body of law in a figurative throwing up of the hands. But the research and examples discussed above suggest that relaxing each body of law's traditional rigidity in supporting its own set of goals is likely justified. Indeed, given the often inseparable and interdependent nature of creative and inventive activities, that each body of law should more explicitly take into account those realities seems only proper.

C. Constitutional Support of Hybridization

As discussed above in Section I.A, traditional accounts of the Constitution's Intellectual Property Clause view it as the basis for two different bodies of law with distinct purposes. And as this Article has explored, Congress and the courts have largely followed that reading of the Intellectual Property Clause in implementing both copyright and patent law.

Yet recent research argues that the historical record may not support this "disjunctive" reading of the Intellectual Property Clause.[168] In his review of the available records from the time of the Constitutional Convention, Dotan Oliar concludes that the more reasonable interpretation of the Intellectual Property Clause is to view the progress of both "science" and the "useful arts" as the prerogative of both copyright and patent law.[169] Indeed, state laws at the time of the Constitution's adoption often incorporated this understanding of the interplay between literature and scientific discovery, upon which the Framers of the Constitution almost undoubtedly relied in drafting the Intellectual Property Clause.[170] It was thus probably understood, as reflected in earlier state intellectual property protections, that artistic and inventive activity were highly interrelated.[171] And if the Framers intended to depart from this traditional understanding as reflected in the many state

168. *See* Oliar, *supra* note 8, at 463–74.
169. *Id.* at 471–74.
170. *Id.*
171. *Id.* at 474.

constitutions at the time, one might expect more debate both at the Convention as well as among the public on this score. But such evidence is lacking in the available public records from the time.[172]

While based in Oliar's historical research, this interpretation of the Intellectual Property Clause is also justified in light of the modern-day realities of creative and innovative activities discussed in Sections II.A and II.B above. Indeed, if the Intellectual Property Clause is Congress's primary means of facilitating creative innovation—and some argue it is Congress's main permitted means under the Constitution[173]—then taking into account the often interdependent, inseparable nature of creativity and invention in implementing both copyright and patent law is not only justified, but needed.

D. Theoretical Support of Hybridization

But will partially bridging the traditional divide between copyright and patent laws result in each body of law becoming less effective at what each is supposed to achieve? The traditional theoretical view is that both copyright and patent laws are justified as correctives to market failure.[174] That is, intellectual products have the properties of public goods. They are non-rivalrous, meaning one party's use of the product does not diminish another's ability to use it.[175] And they are non-excludable, meaning that, without legal intervention, it is difficult to exclude others from using the intellectual product.[176] Because of these properties, traditional theory postulates that, absent legal intervention, parties will not have the right set of incentives to create intellectual products because others can copy and use the products without incurring

172. *Id.*

173. Jeanne C. Fromer, *The Intellectual Property Clause's External Limitations*, 61 DUKE L.J. 1329, 1342–43 (2012).

174. *See, e.g.*, William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325 (1989) (making this argument with respect to copyright law); Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 129–30 (2004) (suggesting that this rationale applies more broadly to intellectual property law in general).

175. ROBERT P. MERGES, PETER S. MENELL, & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 2 (6th ed. 2012).

176. *Id.*

the same costs that the original developer did in creating them.[177] And society suffers as a result.

Copyright and patent laws purportedly address these concerns by granting to the works' creators exclusive rights in them. With these rights, they are purportedly in a better position to recoup the costs of their efforts in developing the works.[178] So if bridging the traditional divide between copyright and patent law weakens these incentives to engage in producing intellectual products, this may harm society rather than benefit it. And adjusting both patent and copyright law defenses and remedies in order to take into account the purposes of the other may in some sense weaken remedies under each, thus potentially reducing incentives to create intellectual products under either body of law.

There are a number of responses to this concern. First, a vast amount of literature has critiqued this traditional utilitarian theory behind both copyright and patent law. For instance, many commentators point to significant areas of intellectual activity that have thrived in the absence of intellectual property rights.[179] Others offer substantial evidence suggesting that, even in contexts where intellectual property rights are available, those rights do not appear in many cases to be the primary drivers behind the intellectual activity in those spheres.[180] In many cases, competitive pressures and other types of incentives appear to be the triggers of intellectual activity.[181] In other words, the utilitarian theory behind copyright and patent laws does not

177. *Id.* at 11–17.

178. *Id.*

179. *See, e.g.*, KAL RAUSTIALA & CHRISTOPHER SPRIGMAN, THE KNOCKOFF ECONOMY: HOW IMITATION SPARKS INNOVATION (2012) (describing a variety of industries that flourish in spite of a lack copyright protections, including sports, fashion, and food); Rochelle Cooper Dreyfuss, *Does IP Need IP? Accommodating Intellectual Production Outside the Intellectual Property Paradigm*, 31 CARDOZO L. REV. 1437, 1444–47 (2010).

180. Clark D. Asay, *A Case for the Public Domain*, 74 OHIO ST. L.J. 753 (2013) (making this argument in the context of the free and open source software movement); Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745 (2012) (discussing the importance of a variety of non-pecuniary incentives for intellectual activity).

181. Asay, *supra* note 180; Fromer, *supra* note 180. *See also* Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Innovation*, *in* ESSAYS IN THE THEORY OF RISK-BEARING 144 (1971) (discussing the incentives to innovate that competitive markets provide).

tell the whole story, even if it does provide a plausible narrative in many cases. Consequently, though care should be taken in making adjustments to copyright and patent laws, these studies suggest that the traditional assumptions of utilitarian theory may not deserve as much deference as they have typically received.

Second, the proposals of this Article would not altogether remove whatever incentives that copyrights and patents provide. So to the extent that such incentives do spur intellectual activity, they would arguably continue to play that role in a world of intellectual property law hybridization. This Article's proposals, if implemented, may alter these incentives in some respects. But, as will be seen in Part III below, these proposals are meant to be modest modifications to the existing system rather than wholesale changes. In other words, as some have argued, intellectual property law bifurcation does serve some useful purposes.[182] But when it does not, the hybridization for which this Article argues would facilitate the interdependencies between creative and inventive activities.

Indeed, implementing this Article's proposals would arguably create additional incentives for intellectual activity that help offset whatever weakening of incentives that may occur. That is, if parties knew that patent law's current indifference to copyrightable creative activity were relaxed, they may be more likely to engage in such creative activity. A software programmer, for instance, might be more likely to undertake a highly creative (and copyrightable) software endeavor, despite the possibility of patent infringement, if that software programmer knew that patent law grants some deference to copyrightable creative activities.

Or, if parties engaging in inventive activity knew beforehand that copyright law grants some deference under its fair use doctrine to inventive activities to the extent that they prove novel and non-obvious, those parties would have greater incentives to pursue those inventions (or at least more clarity). For instance, if a technology developer hoping to develop an

182. Fromer, *supra* note 146, at 1483 (arguing that the differing originality requirements under each of copyright and patent law accord with the psychological literature on creativity); Lee, *supra* note 16, at 820–22 (discussing the importance of preventing copyright from covering functional elements of works that are properly the domain of patent law, if any).

innovative, socially beneficial way of delivering copyrightable content to users knew that copyright law explicitly took into account the innovation's novelty and non-obviousness, that technologist might be emboldened to pursue the innovation.

In other words, the interdependent realities of creative and innovative activities mean that adjusting defenses and remedies under both copyright and patent law in order to better adapt to those realities may actually bolster incentives, overall, rather than weaken them. This bolstering, in turn, may lend greater credence to the predominant utilitarian theory behind each of copyright and patent law so long as each is properly calibrated to the other. The next Part turns to fleshing out the proposed mechanics of intellectual property law hybridization and applying such hybridization to several actual legal disputes.

III. IMPLEMENTING HYBRIDIZATION

As discussed in Part I, several commentators have proposed measures that, if implemented, would help bring about some amount of intellectual property law harmonization. However, such proposals typically lack a clear theory as to why they deserve implementation, other than to suggest that their implementation may help avoid impeding innovation and First Amendment values. For instance, these accounts fall short of providing strong reasons why copyright law should be concerned with goals that traditionally have been the prerogative of patent law. And this lack of coherence may explain why little if any work has been done in suggesting that patent law should seek to foster copyrightable expression when possible.

Part II above has sought to provide a more coherent theory and basis behind intellectual property law hybridization. It points to empirical, neurological, psychological, cultural, and constitutional law research done by this author and others that suggests that the interdependent, inseparable nature of creative and inventive activities is not only *fait accompli*, but one which the Intellectual Property Clause of the U.S. Constitution may have originally assumed.

With these supports in place, this Part now assesses (1) a

"technological fair use" proposal in the copyright sphere,[183] and (2) a proposal relating to reforming patent law remedies.[184] In light of Part II's conclusions, Sections III.A and III.C below suggest several significant modifications to these proposals in order to better hybridize each of copyright and patent law. Sections III.B and III.D then apply the adapted proposals to two significant recent legal disputes.

A. Technological Fair Use Revisited

1. Introduction

As noted earlier, copyright law's fair use defense is an important exception to copyright infringement.[185] The defense privileges certain uses of a copyrighted work—such as a parody or using the work for purposes of criticism—despite those uses technically infringing another party's copyright.[186] Courts determine whether a use is fair by taking into account four statutory factors, as well as certain policy rationales.[187]

Because technological innovations enable more and more potentially beneficial uses of copyrighted works in ways that infringe copyrights absent a fair use defense, several scholars have proposed some form of technological fair use in the past.[188] But subsequent court decisions appear to have given little heed to such proposals.[189]

This Article argues that some form of technological fair use has not been explicitly adopted, despite the relatively frequent calls for it, in part because of the traditional bifurcation between copyright and patent law and the distinct purposes behind each. In other words, courts have assessed cases that implicate both creativity and innovation through whatever conceptual lens—either copyright or patent law—they felt required to apply. Thus, so long as the traditional dichotomy

183. *See* Lee, *supra* note 16.

184. *See* Sarah R. Wasserman Rajec, *Tailoring Remedies to Spur Innovation*, 61 AM. U. L. REV. 733 (2012).

185. *See supra* notes 80–82 and accompanying text.

186. Samuelson, *Unbundling*, *supra* note 103, 2539–42.

187. *Id.* at 2543–44.

188. Lee, *supra* note 16, at 803–04 (describing the work of Paul Goldstein and Pamela Samuelson on this issue).

189. *Id.* at 801.

between copyright and patent laws remains intact, the restrained manner in which courts assess problems involving both innovation and creativity is likely to remain intact as well.

But if courts felt emboldened—indeed, authorized under the Constitutional basis for both bodies of law—to take into account the purposes behind patent law when assessing copyright law questions, and vice-versa, then their analyses of such questions would almost certainly look different. Indeed, as this Section III.A will argue, the same conclusion holds true with respect to a recent technological fair use proposal.

2. Technological Fair Use Basics

The most recent call for some form of technological fair use focuses on information technologies—particularly what Edward Lee, the author of this proposal, calls speech technologies (e.g., peer-to-peer software).[190] Lee argues that copyright law can impede technological innovation in these areas when applied too rigidly.[191] He points out that the fair use defense includes no factors that explicitly take into account technological innovation.[192] And this is so despite the fact that the legally permitted intersection of copyright law and speech technologies is often a question of fair use.[193] He argues on the basis of a synthesis of existing case law, economic theory, the First Amendment, and the Intellectual Property Clause that the defense of fair use should explicitly take into account factors relating to technological innovation.[194]

Lee's proposal leans heavily on a creation/operation/output spectrum that he articulates.[195] The creation end of the spectrum involves using a copyrighted work in order to create a technology.[196] The operation stage covers using a copyrighted work in order to operate a technology, but not producing it as an output of the technology.[197] The output stage, which is at the opposite end of the spectrum from the creation stage,

190. *Id.* at 798 n.1.
191. *Id.* at 802.
192. *Id.* at 805–06.
193. *Id.* at 801.
194. *Id.* at 811–12.
195. *Id.* at 842–45.
196. *Id.* at 842–43.
197. *Id.* at 843–44.

covers these latter scenarios.[198] Examples of output uses of technology include using a photocopier to produce a copy of a copyrighted work, or transmitting content over radio or television technologies.[199]

According to Lee, if the accused technology makes use of the copyrighted work at either the creation stage or in operating the technology, such uses generally weigh in favor of fair use.[200] At the output stage, a finding of technological fair use becomes less likely because the technology produces the copyrighted work as an output and thereby enables uses that in many cases replace or supersede the copyrighted work's typical uses (e.g., photocopying a copyrighted work).[201]

Lee also argues that courts should take into account the technology's possible positive effects on the potential market for the copyrighted work.[202] He (along with others)[203] notes that many technologies that initially were viewed as the death knells of the content industries have actually in many cases become their de facto saviors.[204] Hence, though earlier in his analysis Lee cautions against courts employing cost-benefit analyses of emerging technologies, he suggests that if courts can perceive some public benefit of the technology, particularly one that enhances the copyrighted works' markets, then such considerations should weigh in favor of a finding of technological fair use.[205]

Finally, Lee also recommends considering the effects of an adverse ruling on the market for the speech technology.[206] He argues taking this into account is justified based on both First Amendment values and the need to prevent copyright law from exerting a patent-like effect in controlling the development of emerging speech technologies.[207]

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198. *Id.* at 844–45.
199. *Id.* at 844.
200. *Id.* at 842.
201. *Id.*
202. *Id.* at 853–54.
203. *See generally* Lemley, *supra* note 122, at 128–29 (discussing, for instance, how introduction of the VCR actually ultimately boosted profits for creators of motion pictures).
204. Lee, *supra* note 16, at 853–54.
205. *Id.* at 854.
206. *Id.*
207. *Id.*

3. An Analysis of Lee's Proposal

Lee's proposal has much to recommend it. It offers a serious attempt to provide courts with a framework for adjudicating these complex cases. And the guideposts that it provides make a great deal of sense, particularly when taking into account First Amendment values. Furthermore, his synthesis of previous case law dealing with these issues provides some needed clarity around case outcomes that otherwise may appear to have little in common.[208]

Yet, the analysis falls short, in part, because of its theoretical underpinnings. For instance, Lee's focus on speech technologies is telling; this focus is in some respects necessary because of his theoretical reliance on the First Amendment and its values in coming to his conclusions.[209] In other words, without the First Amendment backing up his claims, Lee's analysis may lack the theoretical support that he needs in order to justify his conclusions. Although he does point to economic efficiency and the Intellectual Property Clause in support of his arguments,[210] the fact that Lee largely confines his analytical construct to speech technologies suggests that those other factors, at least in Lee's mind, may be insufficient to carry the day.[211]

But other technologies outside of speech technologies may also merit technological fair use consideration. Indeed, as will be discussed below, the software industry is replete with situations where an infringement and fair use analysis should take into account considerations relevant to both the underlying copyrighted work and the technology making use of the work.[212] Yet Lee's framework may not adequately cover such scenarios, given that they do not explicitly have to do with speech technologies. In other words, the theory that Lee articulates in support of his framework—which leans heavily on First Amendment values[213]—may not lead to the best

208. *See id.* at 805–11.
209. *See id.* at 813–18.
210. *See id.* at 818–20, 822–32.
211. Lee does not explicitly limit his construct to speech technologies, but much of his analysis focuses on them, and he occasionally seems to explicitly limit himself to them when discussing the fair use factors.
212. *See infra* Section III.B.
213. *See* Lee, *supra* note 16, at 813–18.

outcomes in scenarios where First Amendment considerations are not implicated, even if technically his framework could be applied to such cases.

Relatedly, Lee's creation/operation/output spectrum also poses problems. For instance, while Lee cautions against formulaic precision,[214] his construct may nonetheless lead courts to rule against technological fair use in most cases where a copyrighted work is being used as an output. Indeed, despite his caution against rigid application of his construct, that is, in essence, Lee's recommendation. But again, this recommendation is largely driven by the types of technologies with which Lee is concerned: speech technologies, or technologies whose purpose is to relay to users some form of speech, such as a copyrighted work.

While this spectrum may make some sense with respect to speech technologies, it may make less sense when applying it to technologies that produce copyrighted works as outputs, but are not speech technologies themselves. Software's use of other copyrighted software works as outputs is one such example. And as will be discussed below, such uses may be some of the more innovative uses in the world.[215] Thus, relying too heavily on the First Amendment in these scenarios may mean that some of the technologies most deserving of strong technological fair use consideration do not receive it.

Lee does suggest that courts should assess the likely impact on a technology of an adverse fair use ruling.[216] Doing so may help mitigate some of the above concerns. But again, he largely justifies taking this into account based on the First Amendment and helping maintain what he perceives as appropriate boundaries between patent and copyright law.[217]

But as this Article argues, a more coherent way of approaching copyright cases that implicate technological innovation is to consider the goals of both copyright (encouraging production of original works of authorship) and patent law (encouraging production of inventive ideas) in such assessments. Doing so avoids neglecting certain technologies

214. *See id.* at 833 (noting that it is unrealistic to expect that his proposal will yield "outcomes like a mathematical formula").

215. *See infra* Section III.B.

216. Lee, *supra* note 16, at 854.

217. *Id.*

simply because they do not implicate First Amendment values. The First Amendment may add even more weight to scenarios that implicate it. But other scenarios, as discussed below, are also deserving of strong consideration.[218] And Part II above provides empirical and theoretical support in favor of such intellectual property law hybridization.

4. A Modified Technological Fair Use Proposal

So how should courts conduct fair use inquiries in cases where technological innovation and use of copyrighted works collide? The short answer, described in greater detail below, is that courts could hybridize copyright's fair use analysis by taking into account, as part of that analysis, patent law principles and the purposes behind them. Doing so allows copyright law to respond more flexibly and purposefully in scenarios that implicate both creative and inventive activities.

It should be made clear at the outset that this proposal is not meant to displace the more traditional fair use approach entirely. In some cases involving both innovation and creative works, the traditional fair use approach may already yield a finding of fair use solely on the basis of copyright law and the purposes behind it.[219] Such results should not be disturbed, as they are the product of copyright's own carefully selected internal limitations.

But in cases where fair use is not found under the traditional inquiry, the technological fair use approach, as articulated in this Section III.A.4, should apply in order to improve copyright law's capacity to promote patent law's purposes, without undermining its own. In other words, technological fair use is a second level of inquiry to the more traditional fair use approach that is meant to better calibrate copyright law to the interdependent realities of many creative and inventive activities.

Traditionally, a fair use inquiry involves assessing four non-exhaustive statutory factors: (1) the purpose and character of the use, (2) the nature of the copyrighted work, (3) the amount of the copyrighted work used, and (4) the use's effect on

218. *See infra* Section III.B.

219. *See* Lee, *supra* note 16, at 806–13 (discussing technological cases where a traditional fair use analysis has resulted in a finding of fair use).

the market for or value of the copyrighted work.[220] Courts often give most weight to the purpose and character of the use factor—i.e., whether the use is "transformative" or not—as well as the use's effect on the market for or value of the copyrighted work.[221] But no one factor is dispositive.[222] The following sections discuss how each of these factors should be implemented when a technological fair use case is at hand.

a. Factor One—Whether the Use Is "Transformative"

In assessing the first fair use factor—whether the use of the copyrighted work is "transformative" or not—courts should look to the Patent Act. Under the Patent Act, inventions must be both "novel" and "non-obvious" in order to qualify for patent protection.[223] Novelty generally means that the invention does not already exist in the prior art in a single reference.[224] Non-obviousness stipulates that a patented invention cannot be an obvious improvement upon, change to, or combination of things already in the prior art.[225] In making this non-obviousness assessment, the U.S. Patent Office and courts assess the prior art and compare it to the patent's claimed invention.[226] They may also take into account secondary considerations such as commercial success, long-felt but unsolved need, and the

220. 17 U.S.C. § 107 (2012).

221. *See* 4 NIMMER & NIMMER, *supra* note 43, § 13.05[A][4] (stating that the fourth factor often "emerges as the most important, and indeed, central" factor in fair use cases (citations omitted)); Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 579 (1994) ("[T]he more transformative the new work, the less will be the significance of other factors . . . ."); Joel L. Hecker, *The Wave of the Future or Blatant Copyright Infringement?*, N.Y. ST. B.J., May 2007, at 44, 45 (indicating that courts have traditionally given the most weight in a fair use analysis to the first and fourth factors).

222. *Campbell*, 510 U.S. at 577–78 (1994) (indicating that no one factor is dispositive); Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 448 (1984) (same).

223. *See generally* 35 U.S.C. § 102 (2012) (setting forth patent law's novelty requirement); 35 U.S.C. § 103 (2012) (setting forth patent law's non-obviousness requirement).

224. *See generally* Lemley, *supra* note 135, at 1253–54.

225. *See* 35 U.S.C. § 103 (2012) (requiring non-obviousness). *See generally* Jason Rantanen, *The Federal Circuit's New Obviousness Jurisprudence: An Empirical Study*, 16 STAN. TECH. L. REV. 709 (2013) (discussing courts' interpretations of what non-obviousness means).

226. Graham v. John Deere Co., 383 U.S. 1, 17 (1966).

failure of others to successfully develop the invention.[227] If present, such factors may provide some indication that the invention was not actually obvious in light of what others had previously done, since otherwise the invention would not have experienced the commercial success and acclaim that it did.

These novelty and non-obviousness standards are both threshold questions for patentability.[228] They are in place in order to ensure that only truly inventive things receive patent protection.[229] Hence, they provide some reasonable guidance as to what types of innovations Congress believes are actually worth protecting.

Likewise, in assessing the first fair use factor in a technological fair use case, courts should assess novelty and non-obviousness. Courts would do so not in order to grant a patent to the innovator, but instead to assess whether the innovation is actually transformative and thus worth protecting. Hence, if the innovation making use of the copyrighted work is both novel and non-obvious, such findings should weigh in favor of a finding that the technology is "transformative" and thus in favor of a finding of technological fair use.

There are at least two advantages to using these novelty and non-obviousness proxies in a technological fair use case. First, courts have some experience making such assessments and can rely on case law to provide additional guidance to their efforts. Second, innovation that does meet the novelty and non-obviousness bars is precisely the type of innovation deserving of protection. That is, if some innovation lacks novelty or is obvious in light of what others have done, fewer reasons may exist to grant it deference in balancing rights between copyright owners and technology innovators. But in cases of innovations that do meet these requirements, there is good reason to grant such innovations greater deference since they represent innovations that are hard to come by and which, on average, may provide greater societal value. Hence, while avoiding application of copyright law in ways that harm

227. *Id.* at 18.

228. Indeed, as earlier indicated, a patent may not be granted in the absence of one of these requirements being met. *See* 35 U.S.C. §§ 102–03.

229. Lemley, *supra* note 135, at 1254 (making this point with respect to the novelty requirement); Rantanen, *supra* note 225, at 714–22 (discussing the theory and purpose behind the non-obviousness requirement).

innovation is a valid concern that others have raised time and time again,[230] using these proxies helps ensure that the innovations that we avoid hindering are the types that deserve these extra safeguards.

Of course, using these proxies also poses challenges. If some party actually does patent their innovation (or part thereof) that makes use of some copyrighted work, does that mean that the party can then automatically avail itself of technological fair use in using the copyrighted material? The answer is clearly no. Any fair use analysis requires a balancing of all the relevant factors.[231] While the first factor is important, it is not dispositive.[232]

Relatedly, in assessing these proxies, courts should look at the innovation as a whole, rather than its individual components that, on their own, may be patentable. Looking at the innovation as a whole helps avoid overemphasizing the importance of some innovative component of the larger innovation in ways that may unjustifiably tip the scale in the innovator's favor. After all, it should be the overall technology's use of the copyrighted material that courts are assessing in terms of transformativeness, not individual components thereof. Courts should thus be wary of conflating issues by overemphasizing innovative aspects of the technology that do not actually use the copyrighted work in an innovative or transformative way.

For complex technologies, using the novelty and non-obviousness standards as patent law currently applies them may present additional challenges. Complex technologies, such as smartphones or other computing products, typically implicate thousands of patentable inventions. The Android software operating system, for instance, includes over 10 million lines of software code.[233] Given the complexity of these technologies, it may be asking too much of courts to expect them to be capable of assessing whether such technological

230. *See, e.g.*, *infra* Section I.B.2.

231. 17 U.S.C. § 107 (2012) (listing a non-exhaustive list of relevant factors that courts are to consider).

232. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 577–78 (1994) (indicating that no one factor is dispositive).

233. Timothy B. Lee, *Microsoft's Android Shakedown*, FORBES (July 7, 2011, 8:00 AM), http://www.forbes.com/sites/timothylee/2011/07/07/microsofts-android-shakedown/ [https://perma.cc/64EN-WENK].

innovations are novel or non-obvious in accordance with specialized patent law.[234]

However, relying on patent law's secondary considerations for non-obviousness—commercial success, long-felt but unsolved needs, failure of others, and unexpected results—may be a better approach in such cases and more within a court's grasp. And to some extent using these weaker proxies makes good sense given the goal at hand, which is to grant under copyright law increased protections to innovative technologies, but not to grant them the stronger set of rights that come with a patent.

Of course, the commercial success of an innovation should undergo careful assessment as part of a technological fair use case. After all, there are many factors affecting commercial success other than whether the product is a new or non-obvious improvement upon what has come before. Indeed, commercial success may result in part precisely because the technology facilitates copyright infringement.[235] Nonetheless, significant adoption of the technology in the face of others' repeated failures to deliver the same technology provides some evidence that the technology is worth protecting.

It should also be stressed that if a court making a determination of technological fair use were to conclude that a patented technology either lacked novelty or was obvious in light of the prior art, such a holding would only relate to the technological fair use analysis, not the validity of the patent. And since the validity of the patent was not before the court, its analysis of novelty and/or non-obviousness would not be binding in any way on future courts considering whether the same patent were valid, though other courts may find its analysis persuasive. Indeed, this may be another benefit of this Article's conception of technological fair use—intellectual property law hybridization may yield certain judicial efficiencies in later cases.

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234. *See, e.g.*, Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2120 (2013) (Scalia, J., concurring) (refusing to join part of the majority's opinion discussing science because it is, in his opinion, beyond his level of expertise).

235. Part of the reason YouTube, for instance, was initially popular is precisely because it allowed greater access to copyrighted works.

b. Factor Two—Nature of the Copyrighted Work

The second factor of a fair use analysis concerns "the nature of the copyrighted work."[236] In his proposal, Lee concludes that this factor has less weight in the technological fair use context than in the run-of-the-mill fair use case.[237] This is so because assessing the copyrighted work's level of creativity is a poor proxy, according to Lee, in determining whether the technological use thereof should be permitted.[238] For instance, determining whether using a VCR to time-shift TV programs is fair use on the basis of whether the underlying TV program is mostly a factual work or a highly creative one makes little sense.[239]

But this factor deserves more weight in light of this Article's findings, at least in cases that are not already deemed fair uses under a more traditional approach. If creativity and innovative activity are often inseparable, interdependent realities, as argued in Part II above, then the creativity spectrum discussed therein has implications for assessing this factor. For instance, if a copyrighted work is the result of a highly creative effort, then this should weigh against a finding of technological fair use in cases not already resolved under a more traditional fair use approach. And this may even be the case where the technology in question is deemed in some sense transformative, as measured under patent law.

For example, some technology making use of a copyrighted work may satisfy the novelty and non-obviousness requirements, yet barely so. That is, it may represent a fairly modest innovation, such as a slight improvement in mobile battery efficiency resulting from incorporation of some copyrighted software. In contrast, the copyrighted software being used as part of this innovation may include an elegant and highly creative combination of algorithms that constitutes an ingenious effort. Thus, the balance may tip against a finding of technological fair use because, when comparing the technology to the copyrighted work, the copyrighted work represents a much higher degree of creativity and innovation

236. 17 U.S.C. § 107.
237. Lee, *supra* note 16, at 850–51.
238. *Id.*
239. *Id.*

than the technology. Indeed, a finding of technological fair use may dampen incentives for parties to pursue such highly creative efforts.

Of course, conducting such comparisons poses significant challenges. How to objectively compare the levels of creativity and innovation involved in producing the copyrighted work and technology, respectively, is certainly not a perfect science, nor will it ever be. And courts may, in some cases, be ill-equipped to overcome such challenges.

Yet others have already articulated models for calibrating the rights and liabilities of authors based on the level of creativity involved in producing the copyrighted work.[240] This is not to say that these models are without challenges. But it is to say that such challenges are not without possible solutions. Indeed, fair use today is a highly fact-intensive evidentiary analysis.[241] Under this proposal that general approach would not change, even if the specific elements under consideration within the fair use factors would.

c. *Factor Three—Amount of the Copyrighted Work Used*

The third factor of a fair use analysis takes into consideration the "amount and substantiality" of the copyrighted work used.[242] Generally, the more of the work that is used, the less likely a finding of fair use becomes unless the amount used is "reasonable in relation to the purpose of the copying."[243] In his proposal, Lee layers this approach with his creation/operation/output spectrum.[244] The result is that, in Lee's view, using more of the copyrighted work is justified at the first two stages but less justified when the copyrighted work is used as an output of the technology.[245]

But again, the creativity spectrum discussed in Part II comes into play in assessing this factor as well. If a use is

240. *See, e.g.*, Parchomovsky & Stein, *supra* note 137, at 1509.

241. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 577–78 (1994); *see also* 17 U.S.C. § 107 (containing a non-exhaustive list of factors that courts are to consider); Samuelson, *Unbundling*, *supra* note 103, at 2540.

242. 17 U.S.C. § 107.

243. *Campbell*, 510 U.S. at 586.

244. Lee, *supra* note 16, at 842–45.

245. *Id.* at 842–44.

highly transformative from a technological standpoint, that may weigh in favor of technological fair use, even if the entire copyrighted work is used. This may be especially so if the level of creativity involved in creating the copyrighted work—Factor Two—is low relative to that of the technology.

Conversely, if the technology in question includes only minimal levels of creative innovation, then that technology's use of some copyrightable material may not be justified, even in cases where only small amounts of the copyrighted work are used. This may be particularly so where the copyrighted work represents a highly creative effort.

d. Factor Four—Effect on the Market

Factor Four—the effect of the use on the potential market or value of the copyrighted work—has traditionally been one of the more important factors in the fair-use balancing act.[246] And it would remain so under this Article's conception of technological fair use. But this Article's findings regarding the interdependent, inseparable nature of creativity and innovation have implications for this factor as well.

Indeed, like under Lee's proposal,[247] courts, in assessing this factor, should take into account the potential market impact not only on the copyrighted work, but on the technology as well. This becomes even more imperative if the technological innovation is highly transformative—and thus highly valuable to society—relative to the copyrighted work. Blatant, superseding uses of the copyrighted work in conjunction with the highly innovative technology should not be permitted. But ones that fall outside of the traditional market opportunities of the authors—precisely because of the transformative, innovative uses that the technology enables—should be.

5. Summary

Commentators for some time have worried about the effects that copyright law, when applied too rigidly, can have on innovative technologies.[248] To that end, several scholars,

246. 4 NIMMER & NIMMER, *supra* note 43, § 13.05[A][4].
247. Lee, *supra* note 16, at 854.
248. *See generally* Section I.B.2.

including Edward Lee, have advocated for a modified version of copyright's fair use defense that is geared towards protecting innovative efforts.[249] However, such proposals have typically leaned heavily on the First Amendment as their primary theoretical justification for changing copyright law in this way.[250] And that reliance shapes their proposals in ways that may not best serve technological innovation in all cases.

The question then becomes: if the concern is to better protect innovation, why not look to the body of law that Congress has enacted to promote it? This Article suggests that the traditional bifurcation between patent and copyright law is largely to blame for proposals failing to rely more heavily on principles within patent law in balancing interests between copyrightable expression and technological innovation.

The preceding sections have sought to partially bridge this divide by providing a more coherent way of addressing scenarios that implicate both creative expression and invention in the fair use context. And in so doing, the proposal relies on Part II of this Article and its review of empirical and theoretical reasons why this traditional divide is often unjustified. The next Section applies this modified proposal to a legal dispute between Oracle and Google that implicates a significant intersection between creative and inventive activities.

B. Google's Java Problem[251]

Google's Android software has become the world's most popular software platform for mobile devices, including smartphones, tablets, gaming consoles, and others.[252] Google licenses Android under a variety of permissive open source software licenses that make it accessible to parties other than just Google.[253] Android thus powers devices from a variety of

249. Lee, *supra* note 16, at 813–18.

250. *See generally* Section I.B.2.

251. Portions of this section are adapted from Asay, *supra* note 124.

252. Steven Levy, *New Android Boss Finally Reveals Plans for World's Most Popular Mobile OS*, WIRED (May 13, 2013, 6:30 AM), http://www.wired.com/2013/05/exclusive-sundar-pichai-reveals-his-plans-for-android/ [https://perma.cc/DF3N-AGMG].

253. *Licenses*, ANDROID, https://source.android.com/source/licenses.html [https://perma.cc/FGW3-KPJQ].

companies, including Samsung, Amazon, Motorola, and many others.[254] As of November 11, 2013, Android was used on forty-three percent of the world's smartphones, making it by far the most popular mobile software platform in the world.[255]

Part of Android's ubiquity stems from its incorporation of Java application programming interfaces ("APIs").[256] Sun Microsystems originally developed the Java APIs; Oracle Corporation subsequently acquired Sun Microsystems and thus ownership of the Java APIs.[257] Sun developed the APIs to help programmers solve a ubiquitous problem of having to create a new version of a software program for every different technology platform in order for the program to operate properly on each.[258] The Java APIs helped solve this problem by enabling software developers to create programs once that could then operate on any number of different technological platforms.[259]

When building Android, Google elected to copy many aspects of the Java APIs into the Android ecosystem.[260] Google did so largely because programmers were already familiar with many of the functionalities that the Java APIs permitted.[261] Thus, Google decided to incorporate many of the same functionalities into Android so that programmers would have

254. Levy, *supra* note 252; Lisa Mahapatra, *Android Vs. iOS: What's the Most Popular Mobile Operating System in Your Country?*, INT'L BUS. TIMES (Nov. 11, 2013, 3:22 PM EST), http://www.ibtimes.com/android-vs-ios-whats-most-popular-mobile-operating-system-your-country-1464892 [http://perma.cc/9MLY-ZLTB].

255. Mahapatra, *supra* note 254.

256. Daniel Eran Dilger, *Google Fighting to Suppress Evidence Android Willfully Infringed upon Oracle's Java*, APPLEINSIDER (Aug. 6, 2011, 5:00 PM), http://appleinsider.com/articles/11/08/06/google_fighting_to_suppress_evidence_android_willfully_infringed_upon_oracles_java.html [http://perma.cc/C8DZ-MP7Q] (discussing internal emails at Google, which revealed that Google had evaluated alternative platforms to Java and deemed that all of these alternatives "sucked" in comparison).

257. Larry Dignan, *Oracle Buys Sun; Now Owns Java; Becomes a Hardware Player*, ZDNET (Apr. 20, 2009, 4:44 PM), http://www.zdnet.com/blog/btl/oracle-buys-sun-now-owns-java-becomes-a-hardware-player/16598 [http://perma.cc/7WW2-DTKH].

258. *See generally History of the Java™ Programming Language*, WIKIBOOKS, http://en.wikibooks.org/wiki/Java_Programming/History [http://perma.cc/7RWA-2A42] (last modified June 2, 2015).

259. *Id.*

260. Oracle Am., Inc. v. Google Inc., 872 F. Supp. 2d 974, 978 (N.D. Cal. 2012) *aff'd in part, rev'd in part* 750 F.3d 1339 (Fed. Cir. 2014).

261. *Id.*

an easier time working with and adopting Android.[262]

Overall, Google copied the basic structure, sequence, and organization of thirty-seven specific Java APIs into the Android platform.[263] In some cases Google also copied from the Java APIs single words or short lines of software source code.[264] Google copied this "declaring code" into Android because, without doing so, the pertinent Java API would not work as intended.[265] Google also copied entire files of source code in several instances.[266] But in nearly all other cases, Google created its own "implementing code," or the software that actually carries out the functions specified by the declaring code within the Java APIs.[267]

1. *Oracle v. Google*

Oracle ultimately brought copyright infringement claims against Google on the basis of its use of the Java APIs within Android.[268] Google answered the complaint in part by arguing that the APIs were not subject to copyright and, even if they were, Google's use of them constituted fair use.[269]

In a highly anticipated decision, the district court found that the basic structure, sequence, and organization of the APIs were not copyrightable because they were a system or method of operation,[270] which the Copyright Act expressly excludes from copyright protection.[271] The district court also found that copying the declaring code did not constitute copyright infringement because the merger and short phrase doctrines barred copyright for that specific code.[272]

Oracle appealed the district court's decision to the Court of

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262. *Id.*
263. *Id.*
264. *Id.* at 978–79.
265. *Id.*
266. *Id.*
267. *Id.*
268. The original suit also included patent infringement claims. *See Oracle Sues Google over Android*, REUTERS (Aug. 13, 2010, 2:23 AM), http://www.reuters.com/article/2010/08/13/us-google-oracle-android-lawsuit-idUKTRE67B5G720100813 [http://perma.cc/CD9S-S3E6]. But Oracle ultimately lost on the patent claims. *Oracle*, 872 F. Supp. 2d at 976.
269. *Oracle*, 872 F. Supp. 2d at 976.
270. *Id.* at 976–77.
271. *See* 17 U.S.C. § 102(b) (2012).
272. *Oracle*, 872 F. Supp. 2d at 998.

Appeals for the Federal Circuit. The Federal Circuit reversed the district court on nearly every important point. First, it held that the declaring code is subject to copyright because Oracle had infinite options as to the selection and arrangement of the thousands of lines of software that Google, in the cumulative, had copied.[273] Furthermore, the court held that the short phrase doctrine does not bar copyright in this instance because the 7,000 lines of declaring code that Google had copied should be viewed in the cumulative rather than as individual lines or words.[274]

The Federal Circuit also concluded that the general structure, sequence, and organization of the Java APIs was subject to copyright.[275] The Federal Circuit found that the district court failed to follow binding Ninth Circuit precedent—which, according to the Federal Circuit, holds that copyright can protect the expression of a process or method—and instead followed precedent from another circuit.[276] Furthermore, even the precedent upon which the district court relied was distinguishable from the facts in the present case, at least according to the Federal Circuit.[277] The Federal Circuit thus concluded that, because Oracle employed creative choices in expressing the ideas underlying the Java APIs, that original work was subject to copyright protection, despite whatever functional considerations they entailed.[278]

On the fair use question, the Federal Circuit remanded the case for a new trial on the issue.[279] Although in its review of the fair use factors the court seemed to side with Oracle's position that Google's use of the APIs was not fair use, the court concluded that enough material facts were still in dispute that it could not decide the issue as a matter of law.[280]

273. Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1361 (Fed. Cir. 2014).
274. *Id.* at 1362–63.
275. *Id.* at 1348.
276. *Id.* at 1365–68.
277. *Id.*
278. *Id.* at 1367.
279. *Id.* at 1348.
280. *Id.* at 1376–77.

2. Assessing Technological Fair Use

The Federal Circuit's landmark decision has spawned significant controversy in the technology industry. Some suggest the decision could prove disastrous,[281] while others believe the court came to exactly the correct conclusions.[282] Google, of course, has a number of options. Because its petition to the Supreme Court for certiorari was recently denied,[283] Google can either request an en banc review of the decision with the Federal Circuit[284] or simply undertake a new trial to determine whether Google's use of the Java APIs constitutes fair use.

Hence, if Google chooses not to seek en banc review with the Federal Circuit, then a new trial on the fair use question would occur. Based on the Federal Circuit's opinion, Google's chances to prevail on that issue may appear unpromising. But arguments that take into account the factors outlined above relating to technological fair use make Google's case appear much stronger.

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281. Russell Brandom, *Federal Court Overturns Google v. Oracle Decision, Setting Disastrous Precedent*, VERGE (May 9, 2014, 1:53 PM), http://www.theverge.com/2014/5/9/5699958/federal-court-overturns-google-v-oracle [http://perma.cc/YEQ3-A32T]; Corynne McSherry, *Dangerous Decision in Oracle v. Google: Federal Circuit Reverses Sensible Lower Court Ruling on APIs*, ELECTRONIC FRONTIER FOUND. (May 9, 2014), https://www.eff.org/deeplinks/2014/05/dangerous-ruling-oracle-v-google-federal-circuit-reverses-sensible-lower-court [https://perma.cc/X8Q4-UECJ]; David Pollak, *Oracle v. Google, A Mitigated Disaster*, DZONE (May 11, 2014), http://java.dzone.com/articles/oracle-v-google-mitigated [http://perma.cc/S6N9-MHHV].

282. Florian Mueller, *Oracle Wins Android-Java Copyright Appeal: API Code Copyrightable, New Trial on Fair Use*, FOSS PAT. (May 9, 2014), http://www.fosspatents.com/2014/05/oracle-wins-android-java-copyright.html [http://perma.cc/S4CF-639X] (largely applauding the ruling); *The Sky Is NOT Falling: Oracle v. Google Decision is Good for Software*, SCHNEIDER ROTHMAN INTELL. PROP. L. GROUP, PLLC (May 10, 2014), http://www.sriplaw.com/sky-falling-oracle-v-google-decision-good-software/ [http://perma.cc/RS6L-QLBT] [hereinafter *The Sky Is NOT Falling*].

283. Lawrence Hurley & Dan Levine, *U.S. Top Court Declines to Hear Google Appeal in Oracle Java Fight*, REUTERS (June 29, 2015, 11:49 AM EDT), http://www.reuters.com/article/2015/06/29/us-usa-court-google-idUSKCN0P91O72015062 9 [http://perma.cc/AHR9-D8GF].

284. Mueller, *supra* note 282 (suggesting that a full-court review would probably not change the outcome).

a. Factor One

On the first factor—the purpose and character of the use, including whether the use is for commercial or nonprofit purposes[285]—Google can make a case that what it has done with the Java APIs surpasses anything that Oracle has been able to achieve with them. Oracle has never implemented the Java APIs as part of a successful smartphone software platform, despite repeated efforts to do so.[286] Google has, while also completely rewriting the implementing software code for the platform and augmenting the thirty-seven Java APIs with hundreds more of its own.[287]

Google will face challenges in winning this point, since in some nominal sense it has simply used the APIs in the manner for which they were originally intended—that is, as APIs. But Google has arguably put them into a completely different context and transformed the smartphone and mobile computing industry by so doing.[288] Thus, though the use is certainly commercial in nature, if a court accepts the view that the use of the APIs is highly transformative, the commercial aspect alone should not prove dispositive.

Indeed, judging Android's incorporation of the APIs from the perspective of patent law may help solidify this conclusion. Is Google's use of the APIs novel and non-obvious in light of the Patent Act's standards? Frequent patent assertions against Android users from the likes of Microsoft, Apple, and others may suggest that Android is simply a pirated version of ideas

285. 17 U.S.C. § 107 (2012).

286. Larry Dignan, *Google: Oracle, Sun Blew It on a Java Smartphone*, CNET (Apr. 18, 2012, 5:46 AM), http://www.cnet.com/news/google-oracle-sun-blew-it-on-a-java-smartphone/ [http://perma.cc/EXU5-LGH9].

287. Oracle Am., Inc. v. Google Inc., 872 F. Supp. 2d 974, 978–79 (N.D. Cal. 2012), *aff'd in part, rev'd in part* 750 F.3d 1339 (Fed. Cir. 2014).

288. *See* Glenn Chapman, *Analysts Say Google Is 'Just Trying Harder' Than Apple, and Android Innovation Is Racing Ahead*, BUS. INSIDER (Nov. 18, 2012, 5:31 PM), http://www.businessinsider.com/android-innovation-is-faster-than-apple-2012-11 [http://perma.cc/2FKR-PRBT] (suggesting that Android innovation has outpaced the competition since its introduction in 2008); Anton Wahlman, *Apple Desperately Copies Google's 2008 Features but Passes on Innovation*, STREET (June 6, 2014, 5:25 PM EDT), http://www.thestreet.com/story/12730613/1/apple-desperately-copies-googles-2008-features-but-passes-on-innovation.html [http://perma.cc/7WHV-7JPA] (suggesting that, in 2014, Apple's most recent improvements to its iPhones simply mimic innovations that Google introduced with Android at its inception).

that have been around for some time.[289] But many of those assertions relate to narrower pieces of Android rather than the overall operating system and its incorporation of the APIs.[290] Indeed, some of the most prominent patent suits brought against Android-based phones concern design patents, not utility patents.[291]

But what of the fact that Google has not historically obtained significant numbers of patents on Android?[292] This alone does not indicate that Android's overall system of APIs was not novel or non-obvious at some point. Instead, it may mean that Google simply failed to pursue patents on the operating system because of its "openly" licensed nature.[293]

Because of Android's complexity—the entire platform consists of over ten million lines of software code[294]—it may make the most sense to assess Android's innovativeness in light of the non-obviousness inquiry's secondary considerations. In Android's case, the technology has been incredibly commercially successful and, as mentioned, Oracle has failed to successfully implement the APIs as part of a smartphone

289. *See, e.g.*, Jason Kincaid, *Apple Sues Samsung, Claims Its Android Devices Are Copycats*, TECHCRUNCH (Apr. 18, 2011), http://techcrunch.com/2011/04/18/apple-sues-samsung-claims-its-android-devices-are-copycats/ [http://perma.cc/JPS5-JHRL]; Joe Mullin, *Android Makers Must Pay Microsoft, or Else—Software Giant Sues Samsung*, ARSTECHNICA (Aug. 1, 2014, 3:55 PM MDT), http://arstechnica.com/apple/2014/08/android-makers-must-pay-microsoft-or-else-software-giant-sues-samsung [http://perma.cc/43XK-T8WZ].

290. Florian Mueller, *Apple Does Not 'Own' Multitouch Smartphones and Tablets Any More than Samsung 'Owns' Phablets*, FOSS PAT. (Apr. 3, 2014), http://www.fosspatents.com/2014/04/apple-does-not-own-multitouch.html [http://perma.cc/96ET-H43X] (detailing some of Apple's failed attempts to assert patents against Samsung's Android-based phones on the basis of particular smartphone features).

291. Bret Swanson, *Apple v. Samsung Highlights Unfinished Work in the Patent Reformation*, FORBES (Sept. 2, 2014, 11:28 AM), http://www.forbes.com/sites/bretswanson/2014/09/02/apple-v-samsung-highlights-unfinished-work-in-the-patent-reformation/ [http://perma.cc/N44D-BSDU] (discussing the role of design patents in a patent dispute between Apple and Samsung).

292. Antonio Regalado, *Google's Growing Patent Stockpile*, MIT TECH. REV. (Nov. 29, 2013), http://www.technologyreview.com/news/521946/googles-growing-patent-stockpile/ [http://perma.cc/2QE8-RMRF] (reviewing Google's failure to acquire patents on Android historically and its more recent attempts to acquire patents in order to better protect Android).

293. The Android mobile platform is licensed under a number of permissive licensing terms that essentially allow any third party to use it without paying licensing fees. *Licenses*, *supra* note 253.

294. Lee, *supra* note 233.

platform despite repeated efforts to do so.[295] So at least two of the so-called secondary considerations seem to have been squarely met.

Of course, much of this commercial success may be traced to Android's permissive licensing terms.[296] But other permissively licensed platforms have failed to gain the same level of commercial traction.[297] So factors other than permissive licensing terms—including Google's significant engineering efforts—likely have a great deal to do with Android's success. Indeed, by some accounts Android has largely powered innovation in the smartphone market since its introduction in 2008.[298]

As mentioned, however, others claim that Android's success is largely a result of it copying others' patented inventions.[299] Largely on this basis, Steve Jobs declared "patent thermonuclear war" against Google before he passed away.[300] But again, Apple's patent assertions have to do with more discrete pieces of technology rather than with the overall Android platform and its system of APIs.[301]

It is not possible in this Article to provide a conclusive answer as to whether Android's use of Java APIs in building

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295. Dignan, *supra* note 286.

296. *See* Ryan Paul, *Why Google Chose the Apache Software License over GPLv2 for Android*, ARSTECHNICA (Nov. 6, 2007, 8:26 AM MST), http://arstechnica.com/uncategorized/2007/11/why-google-chose-the-apache-software-license-over-gplv2/ [http://perma.cc/85FT-AWBY] (discussing Android's permissive licensing scheme and its advantages).

297. *See, e.g.*, Adrian Covert, *HP's Open Source WebOS Code Has Arrived. Will Anyone Actually Use It?* GIZMODO (Aug. 31, 2012, 1:31 PM), http://gizmodo.com/5939670/hps-open-source-webos-code-has-arrived-will-anyone-actually-use-it# [http://perma.cc/Y3ER-V6JB] (discussing the release of WebOS, a mobile operating system, under an open source licensing scheme, and expressing skepticism that the technology will succeed); Chris Welch, *HP Is Killing All Remaining Palm WebOS Devices on January 15th*, VERGE (Oct. 16, 2014, 12:06 PM), http://www.theverge.com/2014/10/16/6988395/hp-killing-all-webos-support-january-15 [http://perma.cc/V4HN-PFZG] (confirming the failure of WebOS to take off two years later).

298. Chapman, *supra* note 288 (suggesting that Android innovation has outpaced the competition since its introduction in 2008); Wahlman, *supra* note 288 (suggesting that, in 2014, Apple's most recent improvements to its iPhones simply mimic innovations that Google introduced with Android at its inception).

299. *See supra* note 290 and accompanying text.

300. Scott Cleland, *What Really Made Steve Jobs So Angry at Google*, GIZMODO (Sept. 10, 2012, 7:26 AM), http://gizmodo.com/5941817/what-really-made-steve-jobs-so-angry-about-google [http://perma.cc/78N4-8UW9].

301. Mueller, *supra* note 290; Swanson, *supra* note 291.

the Android ecosystem is "transformative" or not as measured in part under patent law principles. Some evidence, as provided above, suggests an answer in the affirmative. But because the standards that the court applied were different from those articulated in this Article, a full litigation, where all relevant evidence could be produced, would be necessary to provide a more complete assessment thereof. But one of the main points of this Article is to advocate that in considering such evidence, courts should take into account more explicitly the purposes and principles of patent law in scenarios that implicate both copyrighted content and technological innovation. Such an approach recommends itself particularly in situations where a traditional fair use approach, which confines itself to copyright goals, yields a negative fair use finding in part because it simply ignores the goals of innovation law.

b. Factor Two

On the second factor, the nature of the copyrighted work,[302] some of the Federal Circuit's reasoning would seem to align with this Article's findings. For instance, the Federal Circuit's finding that the basic structure, sequence, and organization of the thirty-seven APIs, as well as the thousands of lines of declaring code, were copyrightable because they involved significant creative choices in some respects aligns with this Article's basic conclusion that both original expression and inventive activity implicate creativity.[303] That is, simply because some form of technology is by nature utilitarian—which is the case with software—does not mean that creativity was absent in its production. In fact, the opposite conclusion is more reasonable in light of this Article's analysis in Section II.B above.

The question then becomes, when assessing this factor, the level of creativity involved in producing the APIs. By some accounts, including the Federal Circuit decision, creating the API system was a significant creative effort.[304] This may tend to militate against a finding of fair use. But if the technology using the copyrighted APIs is highly transformative, which on

302. 17 U.S.C. § 107(2) (2012).
303. Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1367–68 (Fed. Cir. 2014).
304. *Id.*; *The Sky Is NOT Falling*, *supra* note 282.

first blush Android's incorporation of the APIs into a mobile computing environment appears to be, then the first factor may neutralize the relative importance of this factor weighing in favor of Oracle.

c. *Factor Three*

On the third factor of the technological fair use analysis—the amount of the copyrighted work used[305]—some of the analysis depends on how courts frame the issue. For instance, Google only used thirty-seven of hundreds of available Java APIs.[306] But viewing the issue from a different angle, if each of the APIs is viewed as a separate work, then Google copied thirty-seven separate works in their entirety. Of course, this is not how the Federal Circuit viewed the APIs—it viewed them cumulatively, including the declaring code, in coming to the conclusion that the work included significant expressive choice.[307] Overall, then, Google seemed to only use the number of Java APIs that it deemed essential for software developers accustomed to using Java.

Hence, though the Java APIs took significant creative efforts to produce, it is important not to conflate the creative effort relating to the entire Java ecosystem with that of creating the pieces thereof that Google actually used. Thousands of lines of software code may sound significant. But when compared to Android's over ten million lines of software code,[308] or even the entire Java ecosystem,[309] the respective creative efforts needed for each gain some needed perspective. Indeed, particularly if Android's incorporation of limited portions of Java is considered transformative, then the relatively small amount that Google used may weigh in Google's favor in terms of technological fair use.

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305. 17 U.S.C. § 107(3) (2015).

306. Oracle Am., Inc. v. Google Inc., 872 F. Supp. 2d 974, 978 (N.D. Cal. 2012) *aff'd in part, rev'd in part* 750 F.3d 1339 (Fed. Cir. 2014).

307. *See Oracle*, 750 F.3d at 1367 (Fed. Cir. 2014).

308. Lee, *supra* note 233.

309. *Oracle and Java*, ORACLE, https://www.oracle.com/java/index.html [https://perma.cc/5Q9F-HD7L] (claiming Java is the "#1" programming language in the world).

d. Factor Four

The final factor—the use's effect on the market for or value of the copyrighted work[310]—may be the most difficult obstacle to Google winning a technological fair use argument. Before Oracle acquired Sun, the company had a long history of licensing the APIs;[311] indeed, licensing APIs is not uncommon in the world of technology.[312] Of course, it seems questionable to foreclose a finding of fair use simply because a party is willing to license assets and others are willing to pay for them, though some courts have engaged in such circular reasoning, as discussed above.[313]

Indeed, risk-averse parties may regularly pay for things that the law may not actually require of them.[314] A prominent engineer at Google, for instance, notoriously indicated in the run-up to the *Oracle v. Google* decision that he was under the impression that the company would need to license the APIs from Sun Microsystems.[315] And Google in fact engaged in extensive negotiations with Sun Microsystems to license the

310. 17 U.S.C. § 107(4) (2012).

311. Dan Farber, *Former Sun CEO Says Google's Android Didn't Need License for Java APIs*, CNET (Apr. 26, 2012, 11:38 AM), http://www.cnet.com/news/former-sun-ceo-says-googles-android-didnt-need-license-for-java-apis/ [http://perma.cc/EX47-7RKU] (discussing parts of this history).

312. Indeed, companies subject use of their APIs to licensing conditions all the time. *See, e.g.*, *API Terms of Use*, INSTAGRAM, https://instagram.com/about/legal/terms/api/ [https://perma.cc/H7Q7-4H27] (setting forth Instagram's API license terms); *API Terms of Use*, LINKEDIN, https://developer.linkedin.com/legal/api-terms-of-use [https://perma.cc/5RHP-SBA2] (setting forth LinkedIn' API license terms).

313. *See* Am. Geophysical Union v. Texaco Inc., 60 F.3d 913, 927–32 (2d Cir. 1994) (rejecting Texaco's fair use argument, largely on the basis that copying individual journal articles hurt the licensing market for the individual articles even though, at the time, the market was not well-developed).

314. *See generally* James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882 (2007) (arguing that risk aversion may generally lead to an expansion of intellectual property rights, or at least how parties and courts perceive the scope of intellectual property rights in determining whether parties must pay for access to goods and services purportedly covered by those rights).

315. Brandon Bailey, *Larry Page Evasive with Oracle's Lawyer, but Admits Google Never Obtained Java License*, SAN JOSE MERCURY NEWS (Apr. 18, 2012, 9:55 AM PDT), http://www.mercurynews.com/ci_20424638/google-oracle-trial-larry-page-admits-android-java-licence [http://perma.cc/GXL7-8MMA] (detailing some of the history of the negotiations between the two sides).

APIs, though the two parties never reached a deal.[316]

While all of this may seem damning for Google's case, the question nonetheless remains how Google's use of the APIs impacted Oracle's market for them. Oracle clearly lost some revenues from the lost licensing opportunity to Google. But Oracle has never developed a successful smartphone/tablet software platform using its Java APIs, nor successfully licensed anyone else to do so.[317] So Google's use of the APIs in such a platform does not appear to undercut any additional revenues that Oracle expected or is currently expecting.[318]

Oracle is naturally free to continue to try to license the technology to third parties for use within a mobile operating system. But the company still has not done so and does not appear poised to.[319] So preventing Google from using the APIs, on the mere supposition that Oracle may eventually do so, or may eventually successfully license someone else to do so, seems like the wrong result. Indeed, as discussed above, this fair use factor should also take into account the likely market impact on the technological product, particularly if it is a transformative one with high societal value. In the case of Android, these conditions seem clearly met.

In fact, in some respects Google's use of the Java APIs may actually enhance Oracle's market for the Java APIs in general. Because Google incorporated the APIs into its own platform, software developers that use Java now need not switch APIs.[320] While Google's use of the APIs may not be the only factor in encouraging developers to continue to use Java, it may be a significant one. Android's incorporation of Java APIs may thus actually bolster Java as an industry standard. And in the future, this may mean that third parties are more likely to use

316. *Id.*

317. Dignan, *supra* note 286 (discussing Oracle's failure to develop a smartphone platform using its APIs).

318. *See generally id.*

319. In fact, Oracle claims that one of the primary reasons that the company is not poised to do so is because Google fragmented Java with Android's success, thereby thwarting Oracle's ability to develop its own successful platform. *See* Opening Brief and Addendum of Plaintiff-Appellant at 27–28, Oracle Am., Inc. v. Google Inc., 750 F.3d 1339 (Fed. Cir. 2014) (No. 13-1021, 13-1022), 2013 WL 518611, at *27–28.

320. Farber, *supra* note 311 (discussing Java adoption generally as one of the reasons that Sun, the previous owner, may have given Google a free pass on using the company's APIs despite the lack of a license).

Oracle's Java-related products for other purposes for which Oracle actually has technological solutions.

3. Summary

In sum, when applying technological fair use as developed in this Article, Google's chances of success appear more promising than what the Federal Circuit decision may imply.[321] It is impossible to detail here all the relevant evidence that may come out during a trial on the matter. But based on what is known, there is room for optimism.

This more optimistic view of Google's chances is largely the product of partially bridging the typical divide between copyright and patent law and taking into account the goals and principles behind each when adjudicating cases that implicate both copyrightable original expression and patentable technological innovation. And as argued in Part II, this conceptual move seems warranted. The next Section examines a proposal to reform patent law remedies and suggests additional changes to this proposal in light of this Article's arguments in favor of intellectual property law hybridization. It then examines a series of patent law cases that implicate copyrightable expression and applies the next Section's modified proposal to those cases.

C. Reforming Patent Law Remedies

Patent law remedies have been a significant source of scholarly discussion in recent years, particularly in light of the U.S. Supreme Court's *eBay Inc. v. MercExchange, L.L.C.* decision.[322] In that case, the Court assessed the standards for determining what types of patent law remedies—injunctive relief or money damages—were appropriate in cases of patent infringement.[323] The legal dispute in question concerned a non-practicing entity or "patent troll"—a patent owner that does not produce products or services but sues others that do—that

321. *See* Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1376–77 (Fed. Cir. 2014).

322. 547 U.S. 388 (2006).

323. *Id.* at 390–91.

had sued eBay for patent infringement.[324] Hence, some of the Court's analysis deals either explicitly or implicitly with this growing phenomenon.[325]

In its holding, the Court overruled the Federal Circuit's presumption that injunctive relief applies in cases of patent infringement absent exceptional circumstances.[326] It instead held that courts should apply a more flexible four-factor test to determine whether a permanent injunction is appropriate in any given case.[327] Those four factors consist of assessing 1) whether the patent holder will suffer irreparable injury, 2) whether money damages are inadequate, 3) balancing of the harms to the parties, and 4) the public interest.[328]

In formulating this standard, the Court clearly indicated that it was not creating categories of entities that should be automatically denied injunctive relief.[329] Nonetheless, some of the case's commentary—particularly that coming from Justice Kennedy's concurrence—has been interpreted to mean that patent trolls generally should not be entitled to injunctive relief. Indeed, district courts have largely implemented this interpretation of the Court's standards in denying patent trolls injunctive relief in the majority of cases since the *eBay* decision.[330]

And such a trend makes some sense. After all, if patent trolls are largely after money, not market share, then granting them money damages seems sufficient; they will not suffer "irreparable damage" without the injunctive relief remedy. The harm of granting injunctive relief against the party producing products and services, on the other hand, may typically outweigh whatever harm the patent troll suffers with a denial of injunctive relief—if in fact they are unjustly suffering any at all.[331]

Indeed, categorically denying patent trolls injunctive relief

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324. *Id.* at 391–93.
325. *Id.*
326. *Id.* at 394.
327. *Id.*
328. *Id.* at 391.
329. *Id.* at 393–94.
330. *See, e.g.*, Rajec, *supra* note 184, at 751–58 (reviewing this trend).
331. For example, denying a patent troll injunctive relief while granting monetary damages would seem to satisfy both parties. The patent troll would receive its monetary compensation, while the infringing party would be able to continue to produce the relevant products and services.

may also help address the concern that, with injunctive relief at their disposal, patent trolls are able to extract higher fees from infringers than may otherwise be justified. But from the opposite perspective, the lack of injunctive relief may also mean that they are unable to obtain appropriate returns on the basis of their patents' value.

Commentators have offered a variety of viewpoints and proposals relating to the *eBay* decision and its aftermath in district courts. Section III.C.1 below assesses one such proposal from Sarah R. Wasserman Rajec that urges courts to alter their calculus in determining what patent law remedies are appropriate in any given situation.[332] Section III.C.2 then suggests how Rajec's proposal should be further modified in light of this Article's findings.

1. Tailoring Remedies to Spur Innovation

As the title and substance of Rajec's article make clear, her purpose in advocating reform of patent law remedy standards is to enhance innovative activity under the patent system.[333] To that end, Rajec takes issue with the emerging rule followed by district courts in the wake of the *eBay* case.[334] This rule has generally meant that patent holders that can demonstrate they have lost market share as a result of patent infringement can obtain injunctive relief, while those that do not cannot.[335]

Rajec concludes that market share is an imperfect proxy for innovative activity because it is both over- and under-inclusive.[336] She argues that some business models that currently contribute the most to innovation actually lack market share.[337] And the rule is under-inclusive because many companies with high levels of market share sometimes have incentives not to further innovate on their existing inventions, instead using their patents to simply bludgeon the competition.[338] Yet the market share rule does not take these types of incentives into account in determining appropriate

332. Rajec, *supra* note 184, at 773–83.
333. *Id.* at 734–35.
334. *Id.* at 736–38, 758–73.
335. *Id.* at 736, 758–59.
336. *Id.* at 738, 759, 759 n.126.
337. *Id.* at 737, 764–73.
338. *Id.*

types of patent remedies.[339]

Rajec suggests that a better standard would lay more stress on the public interest factor of the four-part injunctive relief inquiry, which she indicates is typically recited pro forma under the assumption that granting injunctive relief serves the public interest by remedying patent infringement.[340] Rajec argues that courts should use the public interest factor to more explicitly evaluate the potential effects of permanent injunctions on the incentives to innovate and to provide access to that innovation, which the market share rule systematically neglects.[341] She does not advocate completely abandoning market share as a consideration—indeed, she suggests it should remain a significant consideration.[342] But, in Rajec's view, that consideration should be embedded within a broader public interest analysis that better takes into account the likely effects of a permanent injunction on encouraging both innovation and access to innovative products.[343]

2. An Analysis

Rajec's proposal makes valid points. Commentators have often struggled to differentiate between patent trolls that impede innovation and other non-practicing entities that may actually facilitate it.[344] Thus, relying on market share to determine whether injunctive relief is appropriate is almost certainly over-inclusive, as Rajec argues.[345] And the inertia that sometimes plagues larger companies with significant market share[346] may mean that entitling them to injunctive relief in a patent dispute can give them excessive leverage, thereby working to stop innovative start-ups in their tracks. Rajec's reliance on the previously under-utilized public interest factor may help make the injunctive relief standards that

339. *Id.* at 771–73.
340. *Id.* at 773–83.
341. *Id.*
342. *Id.* at 774–75.
343. *Id.* at 774–83.
344. *See, e.g.*, Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2126–29 (2013) (discussing the different types of non-practicing entities and the costs that each may impose on innovation).
345. Rajec, *supra* note 184, at 759.
346. *Id.* at 768–69.

courts employ even more flexible in effectively responding to innovative environments.

But Rajec's proposal does not address the effects that patent law remedies can have on creative activities outside the patent realm. Indeed, as mentioned, her article is explicitly about adjusting patent law in order to make it better at achieving its traditional purposes.[347] But as this Article has argued, patent law's purposes should also include those traditionally assigned to copyright law.

Hence, the public interest factor for which Rajec advocates[348] ideally would also take into account the public's interest in having access to materials traditionally within the purview of copyright. If granting injunctive relief in a patent dispute would limit access to such creative works, then courts should take into account such a consideration as part of the overall calculus.

It is certainly true that a variety of technologies commonly have downstream effects on copyrightable creative efforts.[349] So denying injunctive relief to parties with patents on such technologies, simply because their technologies facilitate access to or creation of copyrightable content, is the wrong result. For instance, it would make little sense to automatically deny injunctive relief to a patent holder on some streaming technology simply because granting injunctive relief would mean that viewers of streamed content would be impacted.

It may make more sense to deny injunctive relief, however, if the patented technology is a fairly modest innovation compared to the significant public benefit of the copyrightable works. This may be even more true if the patent holder is adequately compensated through monetary damages. In other words, this Article does not argue that the presence of copyrightable activities downstream from the patented technology should dictate the injunctive relief question. But it does argue that those activities should help inform the answer

347. *Id.* at 734–35.

348. *Id.* at 773–83.

349. To take just one example, the development of Apple's GarageBand technology has enabled many amateur artists to produce creative musical works that, without the technology, they may have had difficulty doing. *See A Brief History of GarageBand*, MUSICRADAR (Mar. 17, 2011, 4:24 PM), http://www.musicradar.com/us/tuition/tech/a-brief-history-of-garageband-400471 [http://perma.cc/A4Y3-LYUM].

to that question as part of the public interest factor.

3. Summary

While much has been written about copyright law's potentially deleterious effects on technological innovation,[350] less frequent are analyses of how patent law might interfere with the purposes related to copyright. This relative neglect likely results in part from the traditional divide between patent and copyright law and the purposes behind each. Indeed, even in those analyses that focus on copyright law impeding technological innovation, the traditional divide is alive and well, as discussed above in Section I.B.2.

But patent law can and does have effects on copyrightable creative activities. It should, therefore, take these effects into account given the interdependent, often inseparable nature of creativity and innovation. The next Section explores a recent patent dispute relating to podcasts and applies the reformed proposal discussed above to that dispute.

D. Patenting Podcasts

In early 2013 a company called "Personal Audio" began suing prominent podcasters, including Adam Carolla, for patent infringement.[351] The company had previously asserted patents against the likes of Apple for creating playlists within its products.[352] In the case of Adam Carolla and the other podcasters, Personal Audio claimed that the act of producing a podcast violated one of its patented technologies.[353]

Personal Audio is a prototypical non-practicing entity, also known as a patent troll.[354] Often such an entity relies on the high cost of patent litigation to force alleged infringers to settle

350. *See generally supra* Section I.B.2.

351. Mike Masnick, *Patent Troll Says It Owns Podcasting; Sues Adam Carolla, HowStuffWorks*, TECHDIRT (Feb. 7, 2013, 5:38 AM), https://www.techdirt.com/articles/20130206/07215421891/patent-troll-says-it-owns-podcasting-sues-adam-carolla-howstuffworks.shtml [https://perma.cc/KFM2-H6SE].

352. *Id.*

353. *Id.*

354. *Id.*; Mike Masnick, *Defining the Patent Troll*, TECHDIRT (Dec. 4, 2014, 2:44 PM), https://www.techdirt.com/articles/20141201/12034829287/defining-patent-troll.shtml [https://perma.cc/V9TZ-MSK6].

with it for some monetary amount.[355] Indeed, because of the high costs of patent litigation, alleged infringers often take this settlement route, even in cases where they believe that either they do not infringe the asserted patent or that it is invalid.[356]

In the case of the podcasters, however, Carolla and others initially responded with defiance.[357] Carolla began raising money from his listeners to defend himself against Personal Audio.[358] Personal Audio eventually offered to dismiss its patent suits once it discovered through the litigation process that podcasters, on the whole, make very little money.[359] But for a time, Carolla refused these entreaties and continued to raise money in order to help eventually invalidate Personal Audio's patents.[360] The parties did ultimately settle, with the terms of the settlement mostly confidential.[361]

The podcaster suits are a good example of where patent rights may interrupt creative activity that is typically the sole prerogative of copyright law. That is, remedies under patent law, including with Rajec's reformed proposal, typically do not take into account their potential impact on such creative activities, at least in any sort of explicit way. And this result stems in part from the traditionally strict bifurcation between copyright and patent laws and the purposes behind each.

But it makes good sense for patent law in some cases to explicitly take into account its potential effects on undermining or facilitating the purposes behind copyright law, too. In the case of the podcaster suits, then, an assessment of the appropriateness of injunctive relief should take into account the likely effects on copyrightable creative activity as well.

Hence, courts should not look solely to the market-share rule or even Rajec's broader version of the four-part inquiry; in both cases, despite different implementations, the inquiry is still focused on improving patent law's ability to meet the

355. Lemley & Melamed, *supra* note 344, at 2126.

356. *Id.*

357. Daniel Nazer, *The Good, the Bad, and the Ugly of Adam Carolla's Settlement with the Podcasting Troll*, ELECTRONIC FRONTIER FOUND. (Aug. 18, 2014), https://www.eff.org/deeplinks/2014/08/good-bad-and-ugly-adam-carollas-settlement-podcasting-troll [https://perma.cc/89JZ-JZD7].

358. *Id.*

359. *Id.*

360. *Id.*

361. *Id.*

objectives of patent law—properly incentivizing the production of inventive ideas. Instead, the four-part inquiry in assessing the appropriateness of injunctive relief could be broadened to take into account the potential effects on copyrightable creative activities. And the most logical place for this effect to be considered is under the public interest factor of the four-part inquiry.

In the case of the podcasters, would this broader inquiry have made a difference? After all, Carolla and Personal Audio did eventually settle.[362] Indeed, the costs of defending suits through trial and a determination of remedies remain significant enough to deter that route, even with a test that incorporates additional considerations that may ultimately result in a denial of injunctive relief. And both the current market-share rule and Rajec's reformed proposal were probably sufficient to deny Personal Audio injunctive relief.

Nonetheless, altering patent law remedies generally so as to include considerations that typically belong within the realm of copyright still has salience. The U.S. Supreme Court, for instance, was clear in its *eBay* decision that it was not creating a rule that non-practicing entities are not eligible for injunctive relief, even if district courts subsequent to the decision have largely made this the standard for now.[363] In the case of the Personal Audio-podcaster disputes, therefore, taking into account the possible effects of injunctive relief on copyrightable expression—podcasts—would have weighted the dispute even more strongly in favor of the podcasters. Such ex ante considerations may have affected the initiation and direction of the litigation, including the terms of the settlement.

Furthermore, altering patent law remedies in this way may make an even greater difference in other scenarios. Personal Audio, for instance, still has pending suits against the likes of NBC and other larger media conglomerates.[364] Including potential negative effects on creative output within

362. *Id.*

363. eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 393 (2006).

364. Nazer, *supra* note 357. Some of these suits may be affected, however, by the recent inter partes review finding that Personal Audio's podcasting patent is invalid. *See* Joe Mullin, *Infamous "Podcasting Patent" Knocked Out*, ARS TECHNICA (Apr. 10, 2015, 4:00 PM MDT), http://arstechnica.com/tech-policy/2015/04/10/infamous-podcasting-patent-knocked-out-in-patent-office-challenge/ [http://perma.cc/3CGW-ZGZH].

the injunctive relief test may make denying injunctive relief that much more justified in such scenarios. Furthermore, in patent disputes between two practicing entities, taking into account the potential effects on creative output may also forestall granting injunctive relief where the public would be harmed by virtue of no longer having access to that creative output (rather than simply the allegedly infringing technology itself).

In sum, judicial changes to standards for assessing patent law remedies still fail to take into account those remedies' effects on copyrightable expression. Under Rajec's reform proposal, this remains so.[365] This shortcoming seems justified when viewing patent law in isolation. But when viewing it within a broader, interdependent context, this myopic view of patent law seems less justified. Indeed, as argued throughout this Article, there are good reasons to ensure that both copyright and patent law better reflect and facilitate the traditional purposes of the other.

CONCLUSION

This Article has argued for adjusting both patent and copyright laws to explicitly recognize and better achieve the traditionally distinct purposes of the other. Doing so is justified in terms of the U.S. Constitution as well as the interdependent realities of creative and innovative activities, as discussed above.

But the arguments of this Article should not be construed as a call for complete fusion. Keeping the bodies of law separate, with their distinct requirements and sets of rights, may make sense in many cases in spurring different sorts of activities that are socially valuable. In other words, intellectual property law bifurcation often serves useful societal purposes.

In other cases, however, it may not. Indeed, ignoring the effects that creative activity has on inventive activities, and vice-versa, may mean that in many cases each body of law's bifurcated rigidity results in societal losses as each fails to take into account its contextual realities.

Some will certainly worry that taking such effects into

365. Rajec, *supra* note 184.

consideration in adjusting copyright and patent law defenses and remedies may undermine incentives to pursue copyrightable and patentable activities. That is, intellectual property law hybridization as discussed in this Article may in some respects weaken rights under both copyright and patent law by granting greater deference to considerations traditionally outside of each body of law's scope. And this weakening may disincentivize some parties from pursuing the creative and inventive projects in the first place. Thus, from this point of view, intellectual property law hybridization undermines rather than expands intellectual property law's collective capacities.

But the best way to avoid such potential issues is to carefully circumscribe hybridization in ways that limit such ill effects. This Article has offered two contexts in which some limited intellectual property law hybridization would appear to have positive net results.[366] Indeed, in light of the interdependent realities of creative and innovative activities, adjusting each body of law to better respond to these realities should prove beneficial to them. Or in other words, relaxing each body of law's bifurcated harshness should provide incentives of its own for additional interdependent creativity and innovation, at least in contexts where creative and inventive activities are highly interrelated. This incentives story, in turn, may lend greater credence to the predominant utilitarian theory behind each of copyright and patent law, so long as each is properly calibrated to the other.

While this Article has confined its analysis to legal hybridization in the intellectual property law context, legal hybridization in other legal contexts may make sense as well. Indeed, other scholars have already suggested some form of hybridization in scenarios where two traditionally distinct bodies of law may possess latent synergies.[367] Further study of the interrelationships between traditionally distinct bodies of

366. But as others have argued elsewhere, without some amount of practical experimentation, it is difficult a priori to conclusively state that this would be so. *See, e.g.*, Lisa Larrimore Ouellette, *Patent Experimentalism*, 101 VA. L. REV. 65, 87–88 (2015). But, per the arguments of this Article, there are certainly reasons for optimism.

367. Stephanos Bibas, *Harmonizing Substantive-Criminal-Law Values and Criminal Procedure: The Case of* Alford *and Nolo Contendere Pleas*, 88 CORNELL L. REV. 1361, 1362–63 (2003).

law—and how each might be adjusted to better support the other without undermining the principal body of law—is thus a worthwhile project not only for intellectual property law, but for broader areas of the law as well.