

The Time and Place for "Technology-Shifting" Rights

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Max Stul Oppenheimer, *The Time and Place for "Technology-Shifting" Rights*, 14 Intellectual Property L. Rev. 269 (2010).
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ARTICLES
THE TIME AND PLACE FOR
“TECHNOLOGY-SHIFTING” RIGHTS

MAX STUL OPPENHEIMER*

ABSTRACT.....	270
INTRODUCTION	271
I. THE INTELLECTUAL PROPERTY CHALLENGE: MOTIVATING INNOVATION WITHOUT IMPEDING PROGRESS	273
II. FINDING BALANCE: THE FUNDAMENTAL PROBLEM OF LEGISLATIVE IMPLEMENTATION.....	281
A. <i>The Federal Patent Statute: Rights and Exceptions</i>	284
1. Providing the Required Time-Limited Incentive	286
2. Furthering Progress.....	286
a. <i>Disclosure</i>	288
b. <i>Reservations: Statutory Subject Matter, Novelty and Obviousness/Exhaustion and Repair</i>	289
B. <i>The Federal Copyright Statute: Rights and Exceptions</i>	291
1. Providing the Required Time-Limited Incentive	292
2. Furthering Progress.....	293
a. <i>Disclosure</i>	294
b. <i>Reservations: Fair Use and Sections 107–122</i>	295
C. <i>Trademarks</i>	298
III. THE UNBALANCING EFFECT OF TECHNOLOGICAL ACCELERATION	299
IV. THE ROLE OF THE CONSUMER IN PROMOTING PROGRESS (EARLY ADOPTERS).....	301
V. CONGRESSIONAL AND JUDICIAL BALANCE POINTS.....	305
A. <i>Congress’s Balance</i>	305
B. <i>The Courts’ Balance</i>	309
1. Deference to Congressional Balancing.....	309
2. Judicial Independent Judgment.....	310

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VI. RESTORING THE BALANCE	313
A. <i>The Preferred Solution: A Statutory Right to “Technology-Shifting”</i>	315
B. <i>Judicial Intervention</i>	317

ABSTRACT

Intellectual property policy requires balance between the goal of motivating innovation and the need to prevent that motivation from stifling further innovation. The constitutional grant of congressional power to motivate innovation by securing “for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries” is qualified by the requirement that congressional enactments under the Intellectual Property Clause “promote progress.”

The speed of technological change, particularly in the converging fields of computer software, music, video, television, and communications, coupled with the power of technology industry lobbying, have left the statutory balance tilted in favor of rewarding innovators at the expense of further innovation and of consumers. A particularly vulnerable class of consumers consists of “early adopters,” consumers who buy early stage technology before an industry standard is established. These consumers invest not only in the machinery of the early stage technology but also in the acquisition of libraries of data (including audio and video libraries) which are specific to the technology platform. These early adopters contribute significantly to the ultimate success or failure of new technologies and do so at the risk of losing their investment, and needing to reacquire their libraries, if a different technology prevails as the industry standard and renders their early choice obsolete.

The Supreme Court has already recognized a time-shifting exception to the intellectual property rights of innovators and lower courts have recognized a place-shifting exception. It is now the time and place for a general technology-shifting exception which would allow consumers to shift their media libraries from one format to another without violating intellectual property law.

This Article begins with a brief history of the Intellectual Property Clause, congressional implementation of the clause, and judicial responses. It then summarizes the role of early adopters in “promoting

progress” and argues that while Congress has broad discretion in balancing “promoting progress” with securing authors and inventors “exclusive rights,” protection of the early adopters’ role is constitutionally required. Next, it illustrates how securing a right of technology-shifting (transferring patented or copyrighted works from an older, obsolete, technology to a new technology) satisfies the requirement of promoting progress and fits within the historical model. Finally, it proposes both statutory and judicial steps toward protection of this right.

INTRODUCTION

Intellectual property laws require a balance between the need to motivate innovation and the need to prevent that motivation from stifling further innovation. The foundation of copyright and patent law¹ is Article I, Section 8 of the Constitution, which gives Congress the power to secure “for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries,”² but that power is subject to the duty “[t]o promote the Progress of Science and useful Arts.”³

That congressional power is implemented through federal patent (35

1. Trademark law finds its foundation in a different source, the Commerce Clause. See discussion *infra* Part II.C.

2. U.S. CONST. art. I, § 8, cl. 8. The clause is variously referred to in the literature as the Copyright Clause, the Patent Clause, or the Intellectual Property Clause. For a detailed history of how the clause was drafted and adopted, see Edward C. Walterscheid, *To Promote the Progress of Science and Useful Arts: The Background and Origin of the Intellectual Property Clause of the United States Constitution*, 2 J. INTELL. PROP. L. 1 (1994). Some of the terms used in the clause arguably had different meanings in the eighteenth century than they do today. “Author” had a broader meaning which included “he to whom anything owes its origin; . . . one who completes a work of science or literature.” *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884) (quoting Worcester). This would have been the meaning of “Author of liberty” as used in the fourth verse of *America*. REV. SAMUEL FRANCIS SMITH, *America* (1831), available at <http://lcweb2.loc.gov/diglib/ihhas/loc.natlib.ihhas.200000012/default.html> (last visited Jan. 9, 2010). The original manuscript is online at the Library of Congress website, available at <http://cweb2.loc.gov/diglib/ihhas/loc.natlib.ihhas.1000010476/default.html>. The term “useful arts” was used to distinguish from “liberal arts” and referred to what would today be called “technology.” *Paulik v. Rizkalla*, 760 F.2d 1270, 1276 (Fed. Cir. 1985). For a discussion of the contemporary meaning of “inventor,” see Max Stul Oppenheimer, *Harmonization Through Condemnation: Is New London the Key to World Patent Harmony?*, 40 VAND. J. TRANSNAT’L L. 445 (2007).

3. U.S. CONST. art. I, § 8, cl. 8. It is convenient to refer to the “promote the [p]rogress” phrase as the preamble and the balance of the clause as the body of the Intellectual Property Clause.

U.S.C.) and copyright (17 U.S.C.) statutes, each of which provide general protection for innovators coupled (consistent with the constitutional duty) with exceptions designed to minimize certain aspects of the innovation-stifling effects of monopolies. While patents and copyrights are authorized by the same clause of the Constitution, their implementing statutes differ and congressional attitudes toward the two regimes have been radically different. While patent rights have been under attack and restricted, Congress has expanded copyright owners' rights, to the point where several Supreme Court Justices have questioned whether the rights exceed constitutional authority.

Overly broad intellectual property rights injure competitors and consumers. A particularly vulnerable class of consumers consists of "early adopters," consumers who adopt early stage technology before an industry standard is established (for example, buyers of Radio Shack's Tandy computer, Sony's Betamax videorecorder or Toshiba's HDD high-definition DVD players). These consumers invest not only in the machinery necessary to use the early stage technology but also in the time and effort to learn how to make use of the technology before it has been fully tested by large groups of users, and in the development of libraries of data that can only be accessed using the new machinery. These early adopters contribute significantly to the ultimate success or failure of new technologies and do so at the risk of losing their investment if a different technology prevails as the industry standard, rendering their choice obsolete.

Congress has the initial responsibility for striking the appropriate balance between motivation of innovators on the one hand, and prevention of innovation-stifling overprotection (and consequently protection of the general public) on the other. There are examples of congressional balancing in both the copyright and patent statutes. The copyright statute contains a fair use exception, which permits the use of copyrighted works for purposes such as criticism, and also contains an exclusion of protection for ideas, which permits experimentation with alternative expressions of underlying concepts. The patent statute contains an exception for medical research and also contains a general exclusion of protection for laws of nature, which prevents monopolization of fundamental discoveries that might otherwise prevent development of entire fields.

The speed of technological change, particularly in the converging fields of computer software, music, video, television, and communications, coupled with the power of technology industry lobbies, has left the statutory balance tilted in favor of rewarding innovators at

the expense of further innovation and of consumers.

Courts have held that additional protections are required by the constitutional duty to promote progress: the Supreme Court recognized a time-shifting exception to the rights of innovators in *Sony Corp. v. Universal City Studios, Inc.*,⁴ and lower courts have recognized a place-shifting exception.⁵ It is now the time and place for a technology-shifting exception.

Ideally, Congress should amend the copyright and patent statutes to provide this exception. The “exclusive” rights that the Constitution authorizes Congress to grant are exclusive in the sense of “rights to exclude” rather than “all-inclusive rights.” Thus, there is room to reward innovators with exclusive rights while still reserving sufficient rights to guard against stifling further innovation. Until Congress takes such action, the courts should recognize that all statutory patent and copyright rights are subject to a constitutionally required right of technology-shifting.

I. THE INTELLECTUAL PROPERTY CHALLENGE: MOTIVATING INNOVATION WITHOUT IMPEDING PROGRESS

Patents and copyrights existed in eighteenth-century England and the colonies, although they differed from modern patents and copyrights.⁶ The Articles of Confederation reserved the power to grant copyrights and patents to the states rather than create a federal system.⁷ New Jersey,⁸ New York,⁹ Rhode Island,¹⁰ and Virginia¹¹ all had copyright statutes, although those statutes secured authors’ rights prior to publication, rather than the modern statute’s right to prevent others

4. 464 U.S. 417 (1984).

5. *Recording Indus. Ass’n of Am. v. Diamond Multimedia Sys.*, 180 F.3d 1072 (9th Cir. 1999); *In re Aimster Copyright Litigation*, 334 F.3d 643, 652 (7th Cir. 2003).

6. All of the colonial statutes were directed toward protecting what would now be classed as “literary” works. Works of visual art were not covered and, of course, the concept of recorded sound was unknown at the time (and protection of sound recordings did not enter the copyright statute until the late twentieth century. 17 U.S.C. §§ 101, 102(a)(7) (2006). Act of Oct. 15, 1971. Pub. L. No. 92-140, 85 Stat. 391 (1971), amended by Pub. L. No. 93-573, 88 Stat. 1873 (1974) (current version at 17 U.S.C. §§ 101–1332 (2006)).

7. Article II of the Articles of Confederation specifically reserved to the states all rights not expressly granted to the United States. No right to grant patents or copyrights was included in Articles II and IX of the Articles of Confederation.

8. Act of May 27, 1783, for the Promotion and Encouragement of Literature.

9. Act of April 29, 1786, to Promote Literature.

10. Act of December, 1783, for the Benefit of Publishing.

11. Act of October 1785, for Authors of Literary Works.

from using the published work. Georgia¹² and New Hampshire¹³ recognized both copyrights and patents. Most colonial patents were granted by special acts of the legislature, but at least one state, South Carolina, had a general patent statute.¹⁴ Other state constitutions explicitly prohibited the grant of monopolies¹⁵ and in any event, colonial patents appear to have been rarely granted and rarely enforced.¹⁶

By the time of the Constitutional Convention, James Madison could observe in hindsight that “[t]he States cannot separately make effectual provision for either [patents or copyrights]”¹⁷ and the Convention incorporated Article I, Section 8, Clause 2, the basis of modern patent and copyright law,¹⁸ into the Constitution. The Intellectual Property Clause empowers Congress “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”¹⁹ The records of the Constitutional Convention shed little light on the reason for including the Intellectual Property Clause. The clause was adopted without debate by the full Convention and with little record of committee deliberations.²⁰ The patent language in particular appears to

12. Act of February 3, 1786, for the Encouragement of Literature and Genius.

13. Act of November 7, 1783, for the Encouragement of Literature and Genius.

14. “The Inventors of useful machines shall have a like exclusive privilege of making or vending their machines for the like term of fourteen years, under the same privileges and restrictions hereby granted to, and imposed on, the authors of books.” An Act for the Encouragement of Arts and Sciences, 1784 S.C. Pub. Laws 333–34. *Goldstein v. California*, 412 U.S. 546, 557 n.13 (1973) (describing five patents issued by the Colonies).

15. Two states that explicitly prohibited monopolies are Maryland and North Carolina. MD. CONST. of 1776, Declaration of Rights, art. XLI, § 39 (1867) (“[M]onopolies are odious, contrary to the spirit of a free government, and the principles of commerce; and ought not to be suffered.”); N.C. CONST. of 1776, A Declaration of Rights, art. XXIII (1868) (“[P]erpetuities and monopolies are contrary to the genius of a free State, and ought not to be allowed.”).

16. Walterscheid, *supra* note 2, at 16 (“One indication of the relatively low value attached to patents is the fact that no record has been found of any litigation involving colonial patents . . .”).

17. THE FEDERALIST NO. 43, at 287 (James Madison) (The Heritage Press, 1945).

18. Trademark law’s foundation is the Commerce Clause rather than the Intellectual Property Clause. *Trade-Mark Cases*, 100 U.S. 82 (1879); *Lanham Act*, 15 U.S.C. §§ 1051–1141 (2006). There are substantive reasons to treat trademarks differently from patents and copyrights, discussed *infra* Part II.C.

19. U.S. CONST. art. I, § 8, cl. 8. The clause is variously referred to in the literature as the Copyright Clause, the Patent Clause, or the Intellectual Property Clause.

20. “No delegate to the Constitutional Convention has left any record concerning the interpretation or meaning placed on the intellectual property clause by the delegates themselves.” Edward C. Walterscheid, *Inherent or Created Rights: Early Views on the Intellectual Property Clause*, 19 *HAMLIN L. REV.* 81, 92 (1995).

have been added in committee with no record of who made the addition or why.²¹ The first mention of a section directed to intellectual property appears in the records of August 18, 1787, when it was proposed to grant the federal government the power “[t]o secure to literary authors their copy rights for a limited time . . . [;] [t]o encourage, by proper premiums and provisions, the advancement of useful knowledge and discoveries . . . [;] [t]o grant patents for useful inventions[;] [and t]o secure to Authors exclusive rights for a certain time.”²² It appears that at least four alternatives were discussed: (1) “To secure to literary authors their copy rights for a limited time”;²³ (2) “To encourage by premiums & provisions, the advancement of useful knowledge and discoveries”;²⁴ (3) “To grant patents for useful inventions”;²⁵ and (4) “To secure to Authors exclusive rights for a certain time.”²⁶

The proposal was referred to the Committee of Detail²⁷ where it appears to have remained without further attention until August 31, 1787, when it was referred to the Grand Committee of Eleven along with a number of other unresolved proposals.²⁸ On September 5, 1787, the Committee of Eleven presented the Intellectual Property Clause to the Convention in its final form;²⁹ on September 12, the Committee of

21. Walterscheid, *supra* note 2, at 51 (“There is no record to indicate how the intellectual property proposals submitted by Madison and Pinckney were transformed into this clause. Madison, as a member of the responsible committee, must have known but never explained it. Nor did any other member of the Committee.”). Walterscheid notes that there are inconsistent records of who proposed the clause, even within Madison’s notes. *Id.* at 50–51.

22. 2 THE RECORDS OF THE FEDERAL CONVENTION OF 1787 321–22 (Max Farrand ed., rev. ed. 1937); *see also* Kevin D. Galbraith, Note, *Forever on the Installment Plan? An Examination of the Constitutional History of the Copyright Clause and Whether the Copyright Term Extension Act of 1998 Squares with the Founders’ Intent*, 12 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1119, 1140 (2002).

23. JAMES MADISON, NOTES OF DEBATES IN THE FEDERAL CONVENTION OF 1787 477 (Ohio University Press 1984) (Madison’s suggestion on August 18, 1787).

24. *Id.*

25. *Id.* at 478 (Pinckney’s suggestion).

26. *Id.* Pinckney also suggested, “[t]o establish seminaries for the promotion of literature and the arts & sciences” and “[t]o establish public institutions, rewards and immunities for the promotion of agriculture, commerce, trades, and manufactures.” *Id.*

27. BRUCE W. BUGBEE, GENESIS OF AMERICAN PATENT AND COPYRIGHT LAW 192–93 n.7 (1967).

28. MADISON, *supra* note 23, at 569. The Grand Committee of Eleven comprised one member from each state except Rhode Island and New York, which did not have delegates present at the time. *Id.*

29. Galbraith, *supra* note 22, at 1140. (“On September 5, 1787 . . . the Committee of Eleven reported back with the following language: ‘To promote the progress of Science and useful arts by securing for limited times to authors & inventors the exclusive right to their

Stile and Arrangement presented the Constitution to the full Convention, with the Intellectual Property Clause unchanged, and on September 17, the clause was approved unanimously and without debate or any other record of why the interim language changes were made.³⁰

Although there is little evidence on which to base a proof, logical arguments have been suggested for why such a clause might have been included in an eighteenth-century political document. The three most compelling arguments are that the clause was designed to provide an incentive to innovate, that the clause did no more than acknowledge what would have been viewed at the time as the natural property of authors and inventors,³¹ and that the clause was meant to limit the ways in which the federal government could reward inventors and authors.³²

An essay written during the ratification debates supports the first argument: that the justification for the clause was to reward inventors and authors. The essay further observes that the Intellectual Property Clause rewards inventors and authors without committing government resources, which the new federal government simply did not have.³³

Supporting the “natural property” argument are contemporary statements such as those by the literary property committee of the Constitutional Convention, which was “persuaded that nothing is more properly a man’s own than the fruit of his study,”³⁴ of James Madison,³⁵

respective writings and discoveries.”).

30. *Id.* at 1140–41.

On September 12, the Committee of Stile and Arrangement reported to the full Convention the entire Constitution, which contained the Copyright Clause with the language unchanged from the September 5 version. On September 17, the Constitution was adopted and signed by the delegates, and there was no recorded debate of the Copyright Clause.

Id. See also Walterscheid, *supra* note 2, at 26.

31. See discussion *supra* Part I.

32. *Graham v. John Deere Co.*, 383 U.S. 1, 5 (1966) (“The clause is both a grant of power and a limitation.”).

33. Remarks on the Amendments to the Federal Constitution, 6 American Museum or Repository of Ancient and Modern Fugitive Pieces 303 (1789) (“As to those monopolies, which, by way of premiums, are granted for certain years to ingenious discoveries in countries, and more necessary in this, as the government has no resources to reward extraordinary merit.”).

34. The committee language actually supports all three theories: that intellectual property is “properly a man’s own,” that protecting it would “encourage genius,” and that it would promote “extension of arts and commerce.”

The committee, consisting of Mr. [Hugh] Williamson, Mr. [Ralph] Izard and Mr. [James] Madison, to whom were referred sundry papers and memorials from different persons on the subject of literary property, being persuaded that nothing is

and of John Witherspoon.³⁶ While consistent with natural rights philosophy, these views find little historical support. A contemporary scholar looking to English precedent would have been led to the 1602 case of *Darcy v. Allein*³⁷ and the 1623 Statute of Monopolies.³⁸ In *Darcy*, the court invalidated a monopoly granted by Queen Elizabeth I on playing cards, holding monopolies generally illegal and detrimental because they raised prices, reduced the availability of goods, and reduced competition.³⁹ The court acknowledged that the monopoly at issue was a “royal favor” monopoly and that an inventor who “by his own charge and industry, or by his own wit or invention doth bring any new trade into the realm whether by a truly new invention or by bringing to England a new trade or industry known elsewhere—might

more properly a man’s own than the fruit of his study, and that the protection and security of literary property would greatly tend to encourage genius, to promote useful discoveries and to the general extension of arts and commerce, beg leave to submit the following report: *Resolved*, That it be recommended to the several states, to secure to the authors or publishers of any new books not hitherto printed, being citizens of the United States, and to their ~~heir or assigns~~ executors, administrators and assigns, the copyright of such books for a certain time, not less than fourteen years from the first publication; and to secure to the said authors, if they shall survive the term first mentioned, and to their ~~heirs or assigns~~ executors, administrators and assigns, the copyright of such books for another term of time not less than fourteen years, such copy or exclusive right of printing, publishing and vending the same, to be secured to the original authors, or publishers, ~~or their assigns~~ their executors, administrators and assigns, by such laws and under restrictions as to the several states may seem proper.

24 JOURNALS OF THE CONTINENTAL CONGRESS 326–27 (Friday, May 2, 1783) (Gaillard Hunt ed., Government Printing Office 1922) (strikethrough in original text), *available at* <http://memory.loc.gov/ammem/amlaw/lwjclink.html> (last visited April 14, 2010). Note that the proposal is much more specific than the clause that ultimately was adopted.

35. “The utility of this power will scarcely be questioned. The copyright of authors has been solemnly adjudged, in Great Britain, to be a right at common law. The right to useful inventions seems with equal reason to belong to the inventors.” THE FEDERALIST NO. 43, at 287 (James Madison) (The Heritage Press, 1945). Nimmer concludes, however, that Madison’s reference to the control over unpublished works afforded eighteenth-century British authors as “common law copyright” is “somewhat inaccurate[.]” 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 2.02 (2009).

36. Witherspoon believed that society owed inventors reasonable compensation for the use of their inventions. John Witherspoon, *Lectures on Moral Philosophy*, in THE SELECTED WRITINGS OF JOHN WITHERSPOON 152, 228 (Thomas Miller ed., Southern Illinois University Press 1990).

37. *Darcy v. Allein* (The Case of Monopolies), 11 Co. Rep. 84 b., 77 Eng. Rep. 1260 (K.B. 1602).

38. Statute of Monopolies of 1623, 21 Jac. 1, c. 3, § 6.

39. *Darcy v. Allein* (The Case of Monopolies), 11 Co. Rep. 84 b., 77 Eng. Rep. 1260. *Darcy v. Allein*, (1378–1865) Noy, 173, 182, 74 Eng. Rep. 1131, 1139 (K.B. 1602).

usefully receive a monopoly.”⁴⁰ In 1623, Parliament enacted the Statute of Monopolies, which codified the general prohibition of monopolies but, like the court in *Darcy*, it recognized the distinction between royal favors and inventions and provided that the general prohibition of monopolies should

not extend to any letters patents [] and grants of privilege for the term of fourteen years or under, hereafter to be made, of the sole working or making of any manner of new manufactures within this realm [] to the true and first inventor []and inventors of such manufactures, which others at the time of making such letters patents and grants shall not use[], so as also they be not contrary to the law nor mischievous to the state⁴¹

These sources do not justify patents or copyrights as natural rights and in fact classify inventors together with importers of “a new trade ~~or industry known elsewhere~~ that was never used before.” Rather, they justify them on the basis of a closely related natural right that would have been recognized in the eighteenth century—the right to maintain a trade secret.⁴² As Thomas Jefferson observed, “[i]f nature has made any one thing less susceptible than all others of exclusive property, it is . . . an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one”⁴³

40. *Id.*

41. Statute of Monopolies, 1623, 21 Jac. 1, c. 3, § 6.

42. Trade secret protection arises under common law but has been codified by statute (most of which are based on the Uniform Trade Secrets Act) in a majority of states and the District of Columbia. *See* UNIF. TRADE SECRETS ACT (1985). The general requirements for protection of a common law trade secret, or its codified version, are the possession of confidential information, which confers an economic benefit on those with knowledge of such information, plus reasonable steps to maintain its confidentiality. The common law, and its codified version, prohibit misappropriation of such secrets. *See id.* § 1(4). Federal law provides trade secret protection in certain limited circumstances. *See, e.g.*, 18 U.S.C. §§ 2314–2315 (2006); Economic Espionage Act of 1996, 18 U.S.C. §§ 1831–1839.

43. THOMAS JEFFERSON, *Letter to Isaac McPherson* (Aug. 13, 1813), in *THE PORTABLE THOMAS JEFFERSON* 525, 530 (Merrill D. Peterson ed., The Viking Press 1975). Jefferson further observed: “Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.” *Id.* “This observation was clearly a lapse of economic judgment for the sake of rhetoric. The basis of trade secret law is that there is economic value in keeping competitors in the dark.” Max Stul Oppenheimer, *In Vento Scribere: The Intersection of Cyberspace and Patent Law*, 51 *FLA. L. REV.* 229, 236 n.20 (1999).

This natural right to one’s trade secrets suggests the third theory of justification for an Intellectual Property Clause: motivating neither invention nor authorship but rather disclosure. Inventors and authors have two options for profiting from their work: keep the work confidential, thus relying on trade secret protection,⁴⁴ or commercialize the work publicly. Public commercialization irrevocably surrenders the trade secret. Without the protection of intellectual property law, competitors who thus learn the secret can make use of it without having spent the time and money to develop it. In economic terms, this gives the competitor an advantage over the innovator since the competitor’s pricing does not need to recover research and development costs. Facing a competitor who can use the same innovation at lower cost reduces the incentive to innovate. Thus, by providing the right to exclude competitors from the use of the innovation for a limited term, the Intellectual Property Clause may be viewed as an incentive to encourage innovators to share their ideas.⁴⁵

It follows that the rights granted by intellectual property law must be limited in duration—otherwise, the public receives no benefit from the exchange while the innovator no longer risks the loss of trade secret rights and in effect obtains a perpetual monopoly. This limitation is expressed in the preamble⁴⁶ to the Intellectual Property Clause⁴⁷ and its

44. As long as the requirements for trade secrecy (valuable confidential information as to which reasonable steps are taken to maintain its confidentiality) are met, a trade secret may be maintained—in theory, indefinitely. A public disclosure of the trade secret would destroy it. UNIF. TRADE SECRETS ACT § 1(4) (1985).

45. Some inventions lend themselves to commercialization without surrendering trade secrecy. For example, a machine that makes it cheaper to produce an end product may be kept as a trade secret while the inventor profits by sale of the end product. Most states recognize reverse engineering of a publicly sold product as beyond the protection of trade secret law. *See, e.g.*, *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974). Thus, products that reveal the secret are difficult to commercialize while maintaining trade secrecy, and for this reason works of authorship are often difficult to commercialize while maintaining trade secrecy. However, computer software is a large commercially valuable class of works of authorship that may be commercialized publicly, protected by copyright and maintained as a trade secret by releasing executable code only, or by marketing services performed using the software rather than the software itself. “Cloud computing” utilizes this business model.

46. U.S. CONST. art. I, § 8, cl. 8. Whether the preamble (in order “to promote the Progress”) is a limitation on Congress’s power or merely precatory has been extensively analyzed. The secondary literature debating whether the language limits Congress’s power or merely explains why the Founders included a provision authorizing monopolies is analyzed *infra* Part II.

47. “[T]he federal patent power stems from a specific constitutional provision which authorizes the Congress ‘To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries.’” Art. I, § 8, cl. 8. “The clause is both a grant of power and a limitation.” *Graham v. John Deere Co.*, 383 U.S. 1, 5

purpose is twofold:

The monopoly privileges that Congress may authorize are neither unlimited nor primarily designed to provide a special private benefit [They are] intended to motivate the creative activity of authors and inventors . . . and to allow the public access to the products of their genius after the limited period of exclusive control has expired.⁴⁸

For a clause with such enormous economic importance today, there is little historical record of discussion of its terms during the Constitutional Convention. A number of explanations have been offered for this lack of debate: (1) support for patent rights and copyrights was universal and there was nothing to debate;⁴⁹ (2) patents and copyrights were so unimportant that no one cared enough to debate the proposal;⁵⁰ and (3) the Convention had limited time and more important issues to resolve.⁵¹

Whatever the reason that the Convention directed little attention to the Intellectual Property Clause, Congress made use of the power quickly, passing the first patent statute⁵² and the first copyright statute⁵³

(1966).

48. *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984). *Sony* involved copyrights, but the Court's analysis borrows heavily from patent law.

49. Sidney A. Diamond, *Our Patent System . . . The Past Is Prologue*, 62 J. PAT. & TRADEMARK OFF. SOC'Y 437, 440 (1980) ("The delegates clearly believed firmly that it was in the public interest to establish a patent and copyright system."). Unfortunately, this lack of controversy and legislative history has provided later scholars with little guidance as to the framers' original intent.

50. Walterscheid, *supra* note 2, at 16 ("One indication of the relatively low value attached to patents is the fact that no record has been found of any litigation involving colonial patents of monopoly for invention in any colonial or English court.").

51. Morgan Sherwood, *The Origins and Development of the American Patent System*, 71 AM. SCI. 500 (1983).

The absence of debate over the patent provision . . . has been taken as proof of their firm belief in patents as the best way to encourage socially beneficial innovation. However, it is more likely that the authors of the Constitution proceeded without paying much attention to the subject, since they were also faced with the larger problems of how to structure the government, solve its fiscal difficulties, and defend the new nation.

Id. at 500; Walterscheid, *supra* note 2, at 26 ("It may well have been that the delegates were tired [and] wanted to go home . . .").

52. Act of Apr. 10, 1790 (Patent Act of 1790), ch. 7, 1 Stat. 109–12 (1790) (repealed 1793).

53. Act of May 31, 1790, ch. 15, 1 Stat. 124 (1790) (repealed 1802).

in the second term of its first session. The first patent statute gave the Secretary of State, the Secretary of the Department of War, and the Attorney General (the “Commissioners for the Promotion of Useful Arts”)⁵⁴ the power to grant a patent for fourteen years to anyone who “hath . . . invented or discovered any useful art, manufacture, . . . or device, or any improvement therein not before known or used”⁵⁵ The first copyright statute⁵⁶ gave “authors of any map, chart, book or books . . . being a [citizen or resident of the United States] . . . the sole right and liberty of printing, reprinting, publishing and vending [the same] for the term of fourteen years from the recording of the title thereof”⁵⁷ Prints were added to the list of copyrightable categories in 1802,⁵⁸ and the statute was later amended to accommodate technological advances.⁵⁹

II. FINDING BALANCE: THE FUNDAMENTAL PROBLEM OF LEGISLATIVE IMPLEMENTATION

The Constitution gave Congress both a power and a limitation with regard to intellectual property: the power to provide innovators exclusive rights for limited times, subject to the limitation that the power be exercised so as to promote progress.⁶⁰ Two main statutory intellectual property regimes emerge in Titles 17 (copyrights) and 35 (patents) of the U.S. Code. Both enactments provide the incentive of exclusivity for innovators⁶¹ coupled, consistent with the associated

54. *Graham v. John Deere Co.*, 383 U.S. 1, 6–7 (1966).

55. § 1, 1 Stat. at 110.

56. The term “copyright” was not used until 1831. (“An act . . . respecting copyright.” Act of Feb. 3, 1831, ch. 16, § 4, 4 Stat. 436, 437 (1831)).

57. § 1, 1 Stat. at 124.

58. Act of Apr. 29, 1802, ch. 36, 2 Stat. 171 (1802) (repealed).

59. Specific provisions were added to cover motion pictures (17 U.S.C. § 106(4) (2006)); sound recordings (17 U.S.C. § 102(a)(7)); computer software (17 U.S.C. § 117); and digital audio (17 U.S.C. § 106(6)).

60. In *Graham v. John Deere Co.*, 383 U.S. 1, 6 (1966), the Court held that “[i]nnovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must ‘promote the Progress of . . . useful Arts.’ This is the *standard* expressed in the Constitution and it may not be ignored.” *Id.* at 6. See also *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146–52 (1989); *Paulik v. Rizkalla*, 760 F.2d 1270, 1276 (Fed. Cir. 1985) (holding that the Constitution limits the patent statute to the “purpose of advancing the useful arts—the process today called technological innovation”).

61. The patent incentive is provided in 35 U.S.C. § 101 (2006), which provides: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent

objective of promoting innovation, with exceptions designed to minimize certain innovation-impeding effects.⁶² The Constitution does not specify the specific term of exclusivity to be given as an incentive. In fact, Congress has from time to time changed the term and provided different terms for different types of intellectual property.⁶³

As with most provisions of the Constitution, the details were left to Congress with only broad guidance. Working out the details requires resolving the extremely thorny issue of how to promote progress. In the recent patent case of *Laboratory Corp. of America Holdings, Inc. v. Metabolite Laboratories, Inc.*, Justice Breyer noted the fundamental problem:

therefor, subject to the conditions and requirements of this title.” The copyright incentive is provided in 17 U.S.C. § 106 (2006), which provides:

Subject to sections 107 through 122, the owner of copyright . . . has the exclusive rights to do and to authorize any of the following:

- (1) to reproduce the copyrighted work in copies or phonorecords;
- (2) to prepare derivative works based upon the copyrighted work;
- (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
- (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly;
- (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and
- (6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission.

62. Major exceptions to the rights of patent owners include limiting patents to only four categories of statutory subject matter, 35 U.S.C. § 101 (2006), and excluding from patent protection “laws of nature, natural phenomena, and abstract ideas,” *Diamond v. Diehr*, 450 U.S. 175, 185 (1981), because “[p]henomena of nature, . . . mental processes, and abstract intellectual concepts are . . . the basic tools of scientific and technological work,” *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972), reflecting “a basic judgment that protection in such cases, despite its potentially positive incentive effects, would too often severely interfere with, or discourage, development and the further spread of useful knowledge itself,” *Lab. Corp. of Am. Holdings v. Metabolite Labs., Inc.*, 548 U.S. 124, 128 (2006) (Breyer, J., dissenting). Major exceptions to the rights of copyright owners include excluding underlying ideas from protection and excluding specific uses (notably fair use) from infringement, both discussed *infra* Part II.B.

63. Most recently, it changed the term of United States Patents from seventeen years from date of issue to twenty years from date of application. *See* 35 U.S.C. § 154(a)(2) (2006). Design patents last for fourteen years. *See* 35 U.S.C. § 173 (2006). Copyrights originally lasted for fourteen years and were extendable for an additional fourteen years; under current law they may last for up to ninety years beyond the life of the author. *See* discussion *infra* Part II.B.

sometimes too much patent protection can impede rather than ‘promote the Progress of Science and useful Arts,’ the constitutional objective of patent and copyright protection. . . . The problem arises from the fact that patents do not only encourage research by providing monetary incentives for invention. Sometimes their presence can discourage research by impeding the free exchange of information⁶⁴

In addition, granting monopolies imposes a transaction cost—one wishing to avoid infringement must investigate existing grants to determine whether they might be infringed (which itself is costly) and must take the risk of liability for an incorrect conclusion. The problem of such transaction costs surfaced early. The 1793 patent statute⁶⁵ established a registration system, under which an applicant only needed to allege having “invented any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter, not known or used before the application” and “present a petition to the Secretary of State,”⁶⁶ at which point the Secretary was authorized to issue a patent without any examination of the validity of the applicant’s allegations.⁶⁷ This system produced a large number of patents that were “worthless and void, as conflicting with, and infringing upon one another, or upon, public rights not subject to patent privilege; arising either from a want of due attention to the specifications of claim, or from the ignorance of the patentees of the state of the arts.” This resulted in “a great number of lawsuits . . . which are daily increasing in an alarming degree, onerous to the courts, ruinous to the parties, and injurious to society.”⁶⁸ In response, Congress amended the patent statute in 1836 and created a distinct Patent Office within the Department of State to review applications to determine patentability prior to issue.⁶⁹ This initial review by the Patent Office reduces the number of patents that are issued and presumably rejects a significant

64. *Metabolite Labs.*, 548 U.S. at 126–27 (Breyer, J., dissenting) (internal citations omitted).

65. Act of Feb. 21, 1793, ch. 11, 1 Stat. 318 (repealed 1836).

66. *Id.* at 319–20.

67. Under the 1793 system, patents were issued “without any examination into the merit or novelty of the invention.” SEN. JOHN RUGGLES, SENATE REPORT ACCOMPANYING S. 239, 24th Cong. at 3–4 (1st Sess. 1836).

68. *Id.*

69. Act of July 4, 1836, ch. 357, 5 Stat. 117, 119–20.

number or applications that should not be issued, therefore reducing transaction costs. Issued patents are published and available at the Patent Office. A full text database is also available online, making it possible to search for potential blocking patents.⁷⁰ Although reduced, transaction costs associated with reviewing a large number of copyrights and patents to determine which of them must be avoided remain and can be significant, especially since the number of issued patents has risen dramatically.⁷¹ The same problem arises, of course, with respect to copyrights,⁷² and is potentially even more difficult to manage since copyrights need not be registered and it is therefore impossible to do a comprehensive search for potential infringement. Furthermore, pre-registration review by the Copyright Office is cursory—those copyrights that are registered are checked only to determine whether they meet the threshold standard for authorship (and whether the registration fee has been paid), not for similarity to other works. “Our copyright system has no . . . provision for previous examination . . . [of] originality”⁷³

A. The Federal Patent Statute: Rights and Exceptions

Unlike copyrights, patents have no common law basis and exist purely as a federal legislative right.⁷⁴ The power granted by the Intellectual Property Clause is exercised with respect to inventions in Title 35 of the U.S. Code.⁷⁵ Regulations governing the Patent Office and processing of patent applications are contained in Title 37 of the Code of Federal Regulations,⁷⁶ and specific internal rules governing the

70. A blocking patent is a patent, which would be infringed by a product. The U.S. Patent Office updates the database weekly and makes it available at <http://patft.uspto.gov/>.

71. In the three years of operation under the 1790 statute, fifty-five patents were issued. In 2008, the most recent year for which statistics are available, 157,772 utility patents were issued. U.S. PATENT & TRADEMARK OFFICE, PATENT TECHNOLOGY MONITORING TEAM: TABLE OF ANNUAL U.S. PATENT ACTIVITY SINCE 1790 (2009), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.pdf.

72. It is impossible to determine the number of copyrights created in recent years since registration is no longer required. The number of works registered, however, has grown from 5,600 in 1870 (the first year for which records exist) to 526,378 in 2007, the last year for which statistics are available. U.S. COPYRIGHT OFFICE, ANNUAL REPORT OF THE REGISTER OF COPYRIGHTS: FISCAL YEAR ENDING SEPTEMBER 30, 2007 58 (2007), <http://www.copyright.gov/reports/annual/2007/ar2007.pdf>.

73. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 59 (1884).

74. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989); *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 229–30 (1964); 28 U.S.C. § 1338 (2006) (conferring exclusive federal judicial jurisdiction over patent matters).

75. 35 U.S.C. §§ 101–376 (2006).

76. *Patents, Trademarks, and Copyrights*, 37 C.F.R. §§ 1.1–501.11 (2009).

examination of patent applications are contained in the Manual of Patent Examining Procedure.⁷⁷

Three types of patents are authorized: utility patents,⁷⁸ design patents,⁷⁹ and plant patents.⁸⁰ All three types of patents require disclosure, and eventually publication, of the claimed invention.⁸¹ Only utility patents pose the problem of technological obsolescence and are therefore the only category discussed below. The fundamental exchange required by utility patent law is the inventor’s surrender of a trade secret in exchange for the patent, promoting progress (as the preamble of the Intellectual Property Clause requires)⁸² by putting the public in possession of information that the inventor could have withheld⁸³ and giving the inventor the incentive of an assured term of

77. U.S. Patent and Trademark Office, U.S. Dep’t of Commerce, Manual of Patent Examining Procedure (8th ed., rev. 7, July 2008) [hereinafter *MPEP*].

78. Utility patents may be granted for inventions falling within one of four classes enumerated in the statute. “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . may obtain a patent . . .” 35 U.S.C. § 101. Certain types of inventions that fall within one of these categories have been held not to be patentable under judicially created exceptions. “[P]henomena of nature . . . are part of the storehouse of knowledge . . . free to all men and reserved exclusively to none.” *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948). “Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.” *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).

79. Design patents may be granted for novel ornamental designs. 35 U.S.C. § 171.

80. Plant patents may be granted for distinct and new varieties of plants that have been asexually reproduced. 35 U.S.C. § 161 (2006). Tuber propagated plants are excluded.

81. 35 U.S.C. §§ 112, 122.

82. An issued patent is public and therefore information contained in the application can no longer be maintained as a trade secret.

83. In addition, the patent system is designed to motivate placing technology in the public domain promptly. 35 U.S.C. §§ 102(b) and 103 provide, in effect, a statute of limitations for filing a patent application and more generally the patent statute denies patents to applicants who have abandoned, suppressed or concealed their inventions. 35 U.S.C. § 102(c).

The courts have consistently held that an invention . . . is deemed abandoned, suppressed, or concealed if, within a reasonable time after completion, no steps are taken to make the invention publicly known. Thus, failure to file a patent application; to describe the invention in a publicly disseminated document; or to use the invention publicly, has been held to constitute abandonment, suppression or concealment.

Int’l Glass Co., Inc. v. United States, 408 F.2d 395, 403 (Ct. Cl. 1969) (citations omitted). Commercial use of the claimed invention by the inventor for a significant period before filing a patent application also can result in loss of patent rights. In *Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts Co.*, the court explained, “If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should . . . make and sell his invention publicly, and thus gather the whole profits . . . it would materially

exclusive control over the invention (as the body of the Intellectual Property Clause requires).⁸⁴

1. Providing the Required Time-Limited Incentive

A patent gives its owner the right to stop competitors from making, using, selling, or importing the patented invention for a period starting on the date the patent is issued⁸⁵ and ending twenty years after the date the patent application was filed.⁸⁶ Violation of these rights by an infringer gives rise to damages which are to be “no . . . less than a reasonable royalty. . . .”⁸⁷ Injunctions against infringement are also available,⁸⁸ although not automatic⁸⁹ and attorney fees may be awarded in certain cases.⁹⁰

2. Furthering Progress

The patent statute promotes technological progress directly by the incentive it offers for disclosure, but also indirectly by what it requires

retard the progress of science and the useful arts.” 153 F.2d 516, 518 (2d Cir. 1946) (internal citation omitted). There is an exception for experimental use by the inventor prior to filing a patent application if necessary in order to perfect the invention. *Elizabeth v. Pavement Co.*, 97 U.S. 126, 135 (1877); *Allied Colloids Inc. v. Am. Cyanamid Co.*, 64 F.3d 1570, 1576 (Fed. Cir. 1995).

84. The patent owner’s control is exclusive (meaning the right to exclude) but not exhaustive—the patent owner can only prevent others from making, using, selling, or importing the patented invention. 35 U.S.C. § 154(a).

85. 35 U.S.C. § 154(a)(2).

86. The patent expires twenty years after the date the earliest application was filed (i.e., if there are a series of related patent applications, referred to as “continuing applications,” the term is measured from the date the first in the series was filed), and is subject to adjustment in certain circumstances related to delays in processing by the Patent Office. 35 U.S.C. § 154 (2006).

87. 35 U.S.C. § 284. Although the statute specifies that damages be “no less than a reasonable royalty,” in practice damages rarely exceed what is determined to be a reasonable royalty. *Third Wave Techs., Inc. v. Stratagene Corp.*, 405 F. Supp. 2d 991, 1011 (W.D. Wis. 2005) (Under § 284, courts “imagine a negotiation between the patentee and infringer taking place at the moment the infringement began . . . [which] is an approach that experts have employed for decades in patent cases.”).

88. “[C]ourts . . . may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable.” 35 U.S.C. § 283.

89. Because a patent is, by definition, unique, it might appear that damages would never be a completely adequate remedy for infringement—allowing an infringer to continue infringing and pay damages arguably does not protect the patent owner’s “exclusive” rights. However, in *eBay, Inc. v. MercExchange, L.L.C.*, the Court held that even in patent cases, a court must apply the traditional equitable four-factor test in deciding whether it is appropriate to issue an injunction. 547 U.S. 388 (2006).

90. 35 U.S.C. § 285.

of patent applicants and what it excludes from patentability.

The patent statute is designed to promote technological progress in four major ways: (1) it provides an incentive for the creation of something new (and conversely excludes protection for material which is already available to the public⁹¹ or would likely become available);⁹² (2) it denies patents to certain fundamental discoveries deemed necessary for broad technological development;⁹³ (3) it limits patents to inventions that the public did not already have;⁹⁴ and (4) it requires that the innovator provide a description of how to make and use the invention so that, once the patent expires, the public has possession of the invention.⁹⁵

To accomplish these goals, the patent statute requires that in order to receive a patent, an inventor must file an application with the U.S. Patent and Trademark Office (“USPTO”).⁹⁶ The application is reviewed for compliance with the patent statute, which requires, among other things, a determination that the claimed invention:⁹⁷ (1) is a

91. 35 U.S.C. § 102 denies patentability to ideas which were public either before their supposed invention by the patent applicant, § 102(a), or sufficiently long before the applicant chose to apply for a patent, § 102(b). The two subclauses have different purposes. Section 102(a) reinforces the § 101 principle that only the inventor is entitled to a patent: if there were a printed publication describing the invention before the applicant’s date of invention, then that publication must have been written by someone else and the applicant cannot be the inventor. On the other hand, § 102(b) applies even if the applicant is the one who wrote the printed publication. The purpose of § 102(b) is to discourage inventors from delaying filing an application (thereby delaying, if not destroying, the public benefit of the disclosure of the invention) or from filing a patent application only after efforts to preserve a trade secret have failed. In the case of copyrights, writings may only be protected to the extent that they are original. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991).

92. “Inventions” must be truly inventive and not merely obvious improvements on existing knowledge. 35 U.S.C. § 103 (2006); *Graham v. John Deere Co.*, 383 U.S. 1, 6 (1966); *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 261 (1850).

93. “[L]aws of nature, natural phenomena, and abstract ideas” are also unpatentable. *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

94. The claimed invention must be novel, 35 U.S.C. § 102, and non-obvious, 35 U.S.C. § 103.

95. “The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same” 35 U.S.C. § 112.

96. 35 U.S.C. § 111(a)(1).

97. One of the required elements of a patent application is at least one claim. The claims must define “the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112. Consistent with the balance between protection of inventions and allowing public access to basic ideas, what is reviewed and may ultimately be protected by a patent is the claimed invention, not the underlying or background concepts. MPEP, *supra* note 77, § 2106.

machine, manufacture, composition of matter or process;⁹⁸ (2) is useful;⁹⁹ (3) is novel;¹⁰⁰ (4) would not be considered obvious by a hypothetical person of ordinary skill in the field¹⁰¹ having complete knowledge of the prior art;¹⁰² and (5) is fully described—that is, the application teaches how to make and use the invention.¹⁰³ Only claims that are determined to satisfy the statutory requirements may be issued as a patent.¹⁰⁴

a. Disclosure

The patent statute furthers progress by requiring the public disclosure of the invention. This accomplishes two things—it puts the public in possession of new knowledge and it destroys any trade secret rights. It does so through the mechanism of requiring the filing of a written patent application that will be published no later than when the patent is issued.¹⁰⁵ The patent application must describe and illustrate¹⁰⁶ how to make and use the invention and also disclose what the applicant

98. 35 U.S.C. § 101 (2006). These categories are collectively referred to as “statutory subject matter” and are the only types of inventions, which may be patented. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483 (1974) (“[N]o patent is available for a discovery, however useful, novel, and nonobvious, unless it falls within one of the express categories of patentable subject matter of 35 U.S.C. § 101 . . .”). Interpretation of the four categories is, however, broad, with the term “composition of matter” including “anything under the sun that is made by man.” *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 318 (1980) (rejecting the argument that a genetically engineered bacterium was implicitly excluded from statutory subject matter because, although a “composition of matter,” it was alive).

99. 35 U.S.C. § 101. The Federal Circuit views this requirement as constitutionally required so as to limit patentability to the “purpose of advancing the useful arts—the process today called technological innovation.” *Paulik v. Rizkalla*, 760 F.2d 1270, 1276 (Fed. Cir. 1985). The Patent Office interprets § 101 to require that the claimed invention has a “specific, substantial, and credible [use].” MPEP, *supra* note 77, § 2107.

100. 35 U.S.C. §§ 101–102. Novelty generally means that the claimed invention was not available to the public before the applicant invented it, 35 U.S.C. § 102(a); or one year prior to the effective filing date of the applicant’s patent application, 35 U.S.C. § 102(b).

101. 35 U.S.C. § 103(a).

102. *In re Winslow*, 365 F.2d 1017, 1020 (C.C.P.A. 1966).

103. 35 U.S.C. § 112 (2006).

104. 35 U.S.C. §§ 101, 131, 151.

105. The Uniform Trade Secrets Act defines a “trade secret” as:

[I]nformation . . . that: (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

UNIF. TRADE SECRETS ACT § 1(4) (1985). Publication of a patent destroys the associated trade secrets by two mechanisms: it makes them generally known, and it is a failure to make reasonable efforts to maintain their secrecy.

106. 35 U.S.C. §§ 112, 113.

believes to be the best mode for carrying out the invention, referred to as the “enablement” and “best mode” requirements, respectively.¹⁰⁷ The enablement requirement is designed to assure that the public gets access to enough information to practice the invention once the term of the patent expires.¹⁰⁸ The best mode requirement is designed to prevent an applicant from disclosing a theoretically feasible but impractical way of implementing the invention while concealing a better way of doing so.¹⁰⁹

b. Reservations: Statutory Subject Matter, Novelty and Obviousness/Exhaustion and Repair

The patent statute also helps promote progress by what it reserves to future innovators and the public—limits on the types of advances that may be protected and limits on a patent owner’s enforcement rights.

By statute, only certain categories of invention are patentable: processes, machines, manufactures, and compositions of matter.¹¹⁰ “[N]o patent is available for a discovery, however useful, novel, and nonobvious, unless it falls within one of the express categories of patentable subject matter of 35 U.S.C. § 101”¹¹¹ By judicial interpretation, certain types of inventions are not patentable even though they fall within one of the four categories of statutory subject matter. “Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”¹¹² The balance between the constitutional goal of motivating disclosure and the risk of stifling innovation is delicate. Innovation must be encouraged but basic theoretical discoveries must remain available for use by other innovators. “While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.”¹¹³

107. 35 U.S.C. § 112 (“The specification shall contain a written description of the invention . . . and shall set forth the best mode contemplated by the inventor of carrying out his invention.”).

108. *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1244 (Fed. Cir. 2003).

109. *In re Gay*, 309 F.2d 769, 772 (C.C.P.A. 1962).

110. 35 U.S.C. § 101 (2006).

111. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483 (1974).

112. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972). *See also* *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) (Laws of nature “are part of the storehouse of knowledge . . . free to all men and reserved exclusively to none.”); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981) (“[L]aws of nature, natural phenomena, and abstract ideas [are unpatentable].”).

113. *Diehr*, 450 U.S. at 188 (quoting *Mackay Radio & Tel. Co. v. Radio Corp. of Am.*,

The novelty requirements of 35 U.S.C. § 102¹¹⁴ and the non-obviousness requirements of 35 U.S.C. § 103¹¹⁵ taken together prevent granting patents in exchange for knowledge that was already available to the public, or which would likely have become available to the public without the applicant's disclosure. This assures that the public does not pay the price of granting a monopoly for something that it already has or, in the ordinary course of events, would have. Patents are, as required by the preamble of the Intellectual Property Clause, an incentive to add to public knowledge and so should not be granted for knowledge which is already available to the public.¹¹⁶ As explained by the Supreme Court in *KSR International Co. v. Teleflex Inc.*,¹¹⁷ “[g]ranteeing patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.”¹¹⁸

A patent owner—one who has satisfied all of the above requirements—obtains an “exclusive right” in the sense that the patent owner may exclude others from certain activities with respect to the patented invention. The rights are not, however, “exclusive” in the sense of all encompassing. Some of the more significant restrictions on the patent owners rights are encompassed in the doctrines of exhaustion and repair.

306 U.S. 86, 94 (1939)); *see also* *Corning v. Burden*, 56 U.S. (15 How.) 252, 268 (1854) (“It is for the discovery or invention of some practicable means or method of producing a beneficial result, or effect, that a patent is granted . . .”).

114. 35 U.S.C. § 102 provides:

A person shall be entitled to a patent unless—(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States

115. 35 U.S.C. § 103(a) provides:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Section 103 was not added to the statute until 1952. However, in 1850 the principle codified in § 103 was recognized by the Supreme Court as implicit in the patent statute. *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 261 (1850).

116. *Graham v. John Deere Co.*, 383 U.S. 1, 6 (1966).

117. 550 U.S. 398 (2007).

118. *Id.* at 419.

One of the exclusive rights that a patent confers is the exclusive right to sell products incorporating the patented technology.¹¹⁹ The exhaustion doctrine recognizes that the patent owner obtains the benefit of the patent monopoly when a patented product is first sold. The purchaser, having paid the monopoly price in the initial purchase, is then free to transfer the product without violating what would be included, on a literal reading of the statute, within the patent owner’s exclusive right to sell.

The second exclusive right that a patent confers is the exclusive right to manufacture products incorporating the patented technology.¹²⁰ The repair/reconstruction doctrine, as first enunciated in 1945 by Learned Hand,¹²¹ recognizes again that the patent owner obtains the benefit of the patent monopoly when a patented product is first sold, and the purchaser is permitted to repair the patented product without violating what would be included, on a literal reading, within the exclusive right to manufacture.¹²² Even replacement of individual unpatented parts, one at a time, whether of the same part repeatedly or different parts successively, is no more than the lawful right of the owner to repair his property.¹²³

In effect, these two judicial doctrines permit the owner of a patented product to extend the useful life of the product. The same policy would lead to the conclusion that a product that needed to be transferred to a new platform because of technological obsolescence should not constitute patent infringement—in both cases, the underlying, protected technology would continue to function but for the failure of an unprotected component.¹²⁴

B. The Federal Copyright Statute: Rights and Exceptions

U.S. copyright law may be traced back to the common law of England and the English Statute of 1710, which secured to authors the sole right of publication for designated periods.¹²⁵ Colonial authors were protected by common law, which protected the rights of authors until

119. 35 U.S.C. § 271(a) (2006).

120. *Id.* § 271(c).

121. “The [patent] monopolist cannot prevent those to whom he sells from . . . reconditioning articles worn by use, unless they in fact make a new article.” *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 425 (2d Cir. 1945).

122. *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 346 (1961).

123. *Aluminum Co. of Am.*, 148 F.2d at 425.

124. *See* discussion *infra* Part II.B.2.

125. *Wheaton v. Peters*, 33 U.S. (8 Pet.) 591, 656 (1834).

publication,¹²⁶ and in some states by statute, which remained the sole source of copyright protection under the Articles of Confederation.¹²⁷

The Intellectual Property Clause gave Congress the power to create federal copyrights, and that power is exercised in Title 17 of the U.S. Code.¹²⁸ Regulations governing the Copyright Office and processing copyright registration are contained in Title 37 of the Code of Federal Regulations.¹²⁹ Federal copyright coexisted with common law copyright in unpublished works until 1976 when Congress extended federal statutory copyright to unpublished works and preempted common law rights.¹³⁰ The current copyright statute protects works of authorship as soon as the work is fixed in a tangible medium,¹³¹ so it is technically not necessary for the author to put the public in possession of the work in order to create a copyright.¹³² The practicalities of proving infringement, however, make it necessary for the author to surrender any trade secrets by publication of the artistic work¹³³ in exchange for the exclusive rights of copyright protection.¹³⁴

1. Providing the Required Time-Limited Incentive

A copyright gives its owner the right to stop others from reproducing, distributing, performing, displaying, or creating derivative works from the protected work¹³⁵ for a period that depends on the date

126. The Court in *Wheaton*, held that common law protection did not extend to works once they had been published. 33 U.S. (8 Pet.) 591. U.S. copyright statutes likewise preserved common law copyright rights in unpublished works until 1976 when statutory coverage was extended to unpublished works and contrary state laws were preempted. 17 U.S.C. § 301 (2006); *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539 (1985).

127. See discussion *supra* note 7.

128. 17 U.S.C. §§ 101–1332 (2006).

129. *Patents, Trademarks, and Copyrights*, 37 C.F.R. §§ 1.1–501.11 (2009).

130. 17 U.S.C. § 301. Unpublished works already in existence before January 1, 1978, are treated separately. See 17 U.S.C. § 303.

131. 17 U.S.C. § 102(a).

132. The author could fix a work (thereby creating a copyright) but not publish it. Student notes, assuming they are not literal transcriptions of a lecture, would be an example.

133. This disclosure satisfies the requirement of the preamble of the Intellectual Property Clause. U.S. CONST. art. I, § 8, cl. 8.

134. This satisfies the requirement of the body of the Intellectual Property Clause. The copyright owner's control is exclusive (meaning the right to exclude) but not exhaustive—the copyright owner can only prevent others from reproducing, distributing, performing, displaying, or creating derivative works. 17 U.S.C. § 106 (2006). See discussion *infra* Part II.B.2.

135. Subject to 107 through 122, the owner of copyright . . . has the exclusive rights to do and to authorize any of the following:

(1) to reproduce the copyrighted work in copies or phonorecords;

of creation and the nature of the author. “Anyone who violates any of the exclusive rights of the copyright owner . . . is an infringer”¹³⁶ and is subject to injunctive relief,¹³⁷ liability for damages that may include the copyright owner’s damages or, if greater, the infringer’s profits,¹³⁸ impoundment of infringing items,¹³⁹ and, in appropriate cases, costs and attorneys fees.¹⁴⁰

2. Furthering Progress

As an exercise of Intellectual Property Clause power, the copyright statute must further progress.¹⁴¹ Its core purpose is “promoting broad public availability of literature, music, and the other arts”¹⁴² and like the patent statute, it accomplishes that purpose in two ways. It does so directly by the incentive it offers to authors for creation, publication, and registration,¹⁴³ and it does so indirectly by what it excludes from copyright protection, thereby protecting later innovators and the public by placing limits on the types of works which may be protected and limits on a copyright owner’s enforcement rights.

(2) to prepare derivative works based upon the copyrighted work;

(3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;

(4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly;

(5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and

(6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission.

17 U.S.C. § 106(1)–(6).

136. 17 U.S.C. § 501(a).

137. 17 U.S.C. § 502.

138. 17 U.S.C. § 504. The copyright statute also provides for statutory damages—fixed sums that a court may award for infringement without proof of actual damages. 17 U.S.C. § 504(c).

139. 17 U.S.C. § 503.

140. 17 U.S.C. § 505 (2006).

141. *Kendall v. Winsor*, 62 U.S. (21 How.) 322, 328 (1859); *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152–53 (1950).

142. *Fogarty v. Fantasy, Inc.*, 510 U.S. 517, 526 (1994) (quoting *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975)).

143. Copyright attaches to a work upon mere fixation in a tangible medium. There are, however, benefits to registration, including access to federal courts (the only courts with jurisdiction to hear copyright infringement cases) and enhanced damages.

a. Disclosure

Technically, the copyright statute does not require disclosure of a work in order to create a copyright.¹⁴⁴ A copyright “subsists” in any original work of authorship fixed in a tangible medium.¹⁴⁵ Originality is a constitutional requirement, although the threshold of creativity required to meet this requirement is low.¹⁴⁶ Enforcement, however, requires access to federal courts, and a jurisdictional requirement is registration.¹⁴⁷ Registration is required in order to enforce a copyright, but even registration (which requires that a filing becomes publicly available¹⁴⁸ with the Copyright Office) falls far short of “promoting broad public availability” and does not even require disclosure of the work itself in all cases.¹⁴⁹ The Copyright Office only reviews the application for completeness and to determine whether the work is a “work of authorship.” There is no substantive review to determine if it is similar to, or might infringe, previously registered works.¹⁵⁰ However, since the only acts constituting infringement are reproducing,

144. Formal requirements for copyrights, such as publication with a notice of copyright or registration of a claim to copyright, are prohibited by the Berne Convention. Berne Convention for the Protection of Literary and Artistic Works (1886). Prior to accession to the Berne Convention, the U.S. copyright statute did require publication with a copyright notice as a prerequisite to the existence of federal copyright and provided for loss of copyright if a work were published without the required notice.

145. 17 U.S.C. § 102(a).

146. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991) (holding that the white pages of a telephone directory did not meet the standard of creativity to qualify for copyright protection).

To qualify for copyright protection, a work must be original to the author. . . . Original[ity], as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses . . . some minimal degree of creativity. . . . To be sure, the requisite level of creativity is extremely low; even a slight amount will suffice.

Id.

147. “[N]o . . . action for infringement of the copyright . . . shall be instituted until . . . registration of the copyright claim has been made . . .” 17 U.S.C. § 411(a) (2006).

148. The registration materials are available to the public in the sense that they may be viewed at the Library of Congress. They are not posted on a web site nor may the public make copies of the work itself; this would be a violation of the copyright owner’s exclusive rights. *See* 17 U.S.C. § 106.

149. The Copyright Office has the right to request copies of certain works, but the registration form does not require that all works be included with registration. *See* U.S. Copyright Office Form TX (registration of textual works), Form VA (registration of visual works) and Form SR (registration of sound recordings).

150. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 59 (1884) (“Our copyright system has no . . . provision for previous examination by a proper tribunal as to . . . originality . . .”).

distributing, performing, displaying, or creating derivatives of the copyrighted work,¹⁵¹ a work cannot be infringed if it has been disclosed to no one.¹⁵²

b. Reservations: Fair Use and Sections 107–122

Other than the requirements of originality and authorship, there are no restrictions on the types of works that may be copyrighted.¹⁵³ There is no mechanism comparable to those provided by the patent statute¹⁵⁴ to assure that only one copyright is granted with respect to similar works.¹⁵⁵ Thus, it is theoretically possible to face allegations of copyright infringement from multiple plaintiffs with respect to the same act.

The risk of stifling innovation is reduced in three ways: by the definition of infringement itself, by specific statutory exceptions to a copyright owner’s rights, and by judicially created limits on a copyright owner’s rights.

The definition of infringement requires an act related to the copyright owner’s work—“facts are not copyrightable”¹⁵⁶ nor is independent creation of a work, no matter how similar to the copyrighted work, an act of infringement.

Even as to a copyrightable work, which is the basis of the alleged infringer’s acts, certain activities are permitted. The rights granted by 17 U.S.C. § 106 are all “[s]ubject to sections 107 through 122”¹⁵⁷ In brief summary, § 107 codifies the fair use defense,¹⁵⁸ § 108 provides

151. 17 U.S.C. § 501(a).

152. Copyright infringement does not extend to the underlying ideas in a copyrighted work, nor does it extend to independently created works, which are similar to a copyrighted work. *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344 (1991) (“[F]acts are not copyrightable”). Therefore, it is, as a practical matter, necessary to put the public in possession of the work in order to establish infringement.

153. Earlier copyright statutes were specific as to types of works that were copyrightable. The list expanded as new technologies emerged, and the current statute provides that “[c]opyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.” 17 U.S.C. § 102(a). The statute then enumerates a list of categories, which are included within the definition of “works of authorship,” but the list is not exclusive.

154. See discussion *supra* Part II.A.

155. *Burrow-Giles Lithographic Co.*, 111 U.S. at 59 (“Our copyright system has no . . . provision for previous examination by a proper tribunal as to . . . originality”).

156. *Feist*, 499 U.S. at 344.

157. 17 U.S.C. § 106 (2006).

158. 17 U.S.C. § 107, discussed in detail *infra* note 169.

exceptions for certain library activities,¹⁵⁹ § 109 authorizes resale of a copyrighted work,¹⁶⁰ § 110 authorizes certain educational uses of copyrighted works,¹⁶¹ §§ 111, 112, 114, 119, and 122 authorize certain uses by broadcasters,¹⁶² § 113 authorizes photographs of physical objects incorporating copyrighted works,¹⁶³ § 115 provides for compulsory licenses to “cover” previously released music,¹⁶⁴ § 117 protects certain uses of computer software,¹⁶⁵ § 118 establishes a mechanism for compulsory licenses at fixed royalties for certain uses of copyrighted works,¹⁶⁶ § 120 authorizes photographs of architectural works,¹⁶⁷ and § 121 provides for certain reproductions for use by the blind and other people with disabilities.¹⁶⁸

The most widely used exception to copyright enforcement is the fair use defense of 17 U.S.C. § 107.¹⁶⁹ The statute lays out the factors to be considered in determining whether a use is fair or not, and several

159. 17 U.S.C. § 108.

160. 17 U.S.C. § 109.

161. 17 U.S.C. § 110.

162. 17 U.S.C. §§ 111 (cable systems), 112 (broadcasters), 114 (radio), 119 (secondary television transmissions), and 122 (satellite).

163. 17 U.S.C. § 113 (2006).

164. 17 U.S.C. § 115.

165. 17 U.S.C. § 117, discussed in detail *infra* note 187.

166. 17 U.S.C. § 118(b)(4).

167. 17 U.S.C. § 120(a).

168. 17 U.S.C. § 121.

169. The doctrine was recognized before it was incorporated in the statute in *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841), where Justice Story held it an infringement to copy 319 of the 7,000 pages from Writings of President Washington but noted that “[i]f it had been the case of a fair and bona fide abridgement of the work of the plaintiffs, it might have admitted of a very different consideration.” *Id.* at 349. As discussed *infra* note 246, the fair use exception is not as extensive as commonly believed, and is limited to specific types of uses. The statute provides:

In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market for or value of the copyrighted work.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

17 U.S.C. § 107 (2006). As argued in discussion *infra* Part V.A, this is an area that Congress could amend to deal with the technology-shifting problem.

principles have been established in judicial decisions:

1. Although the statute directs attention to whether the use is commercial or nonprofit, this factor is not determinative.¹⁷⁰ Commercial uses are presumed unfair¹⁷¹ but the converse is not true—even a nonprofit use may constitute infringement.

2. The nature of the work typically distinguishes between fiction and non-fiction, with works of fiction entitled to more protection than non-fiction.¹⁷²

3. Transformative uses¹⁷³ are more likely to constitute fair use¹⁷⁴ and the more transformative a use is, the less significant the other factors are in the analysis.¹⁷⁵ Even use of an entire unaltered work could theoretically be transformative enough to satisfy fair use.¹⁷⁶ Use for criticism and parody receive special consideration, in light of First Amendment concerns.¹⁷⁷

4. The effect on the potential market for the work has been argued to be the most important element in fair use analysis.¹⁷⁸

While the fair use defense is available in appropriate cases, the fact-specificity of the analysis prompted the Second Circuit to characterize the doctrine as “the most troublesome in the whole law of copyright,”¹⁷⁹ making it dangerous to rely on as a defense.

Section 117 carves out exceptions in the specific area of computer software and is discussed in detail at note 187, *infra*.

Finally, while 17 U.S.C. § 106 grants an exclusive right of distribution, the judicially created “first sale” doctrine provides that, once a copyright owner has placed a copy in commerce, the lawful owner of that copy may display, resell, or otherwise transfer it.¹⁸⁰

170. Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 562 (1985).

171. Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417, 451 (1984).

172. Bond v. Blum, 317 F.3d 385, 395 (4th Cir. 2003).

173. A use is transformative if it uses a work in a different manner or for a different purpose. Pierre N. Leval, Commentary, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1111 (1990).

174. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 579 (1994).

175. *Id.*

176. *Id.* at 577–78; Perfect 10, Inc. v. Amazon.com, Inc., 508 F.3d 1146, 1165 (9th Cir. 2007).

177. Suntrust Bank v. Houghton Mifflin Co., 268 F.3d 1257, 1274 n.28 (11th Cir. 2001).

178. NXIVM Corp. v. Ross Inst., 364 F.3d 471, 482 (2d Cir. 2004); Leval, *supra* note 173, at 1124.

179. Dellar v. Samuel Goldwyn, Inc., 104 F.2d 661, 662 (2d Cir. 1939).

180. United States v. Drebin, 557 F.2d 1316 (9th Cir. 1977); United States v. Atherton, 561 F.2d 747, 750 (9th Cir. 1977). The first sale doctrine is a defense to infringement based on

C. Trademarks

Trademarks are often treated as a third category of intellectual property rights,¹⁸¹ and are included here for completeness, but trademarks are not enabled by the Intellectual Property Clause and do not pose the same risk of impeding innovation by increasing early adopters' costs as do patents and copyrights.

The *Trade-Mark Cases*¹⁸² held that the Intellectual Property Clause could not support a federal trademark statute since trademarks were neither inventions nor works of authorship.¹⁸³ More fundamentally, trademarks also differ from copyrights and patents in that trademarks cannot be created without public disclosure, while the underlying philosophy of the Intellectual Property Clause is to motivate disclosure of what may otherwise be maintained as a trade secret. An inventor or an author has the choice to profit from innovation without making it public; a trademark owner has no choice but to make the trademark

the exclusive distribution right, not a general defense to infringement. For example, purchasing an embodiment of a copyrighted work does not confer the right to create an adaptation of that work. *See* *Mirage Editions, Inc. v. Albuquerque A.R.T. Co.*, 856 F.2d 1341, 1344 (9th Cir. 1988). The statute provides:

[n]otwithstanding the provisions of section 106(3) [which grants the copyright owner the exclusive right to distribute], the owner of a particular copy or phonorecord lawfully made . . . or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord,

17 U.S.C. § 109(a) (2006), and

[n]otwithstanding the provisions of section 106(5) [which grants the copyright owner the exclusive right to display publicly], the owner of a particular copy lawfully made . . . or any person authorized by such owner, is entitled, without the authority of the copyright owner, to display that copy publicly

17 U.S.C. § 109(c).

181. Trademarks may be considered intellectual property in the sense that they relate to an intangible right and relate to a product of the mind. In *Trade-Mark Cases*, 100 U.S. 82 (1879), the Supreme Court distinguished trademarks from copyrights and patents on the basis that trademarks were not considered creative. *Id.* While many modern trademarks exhibit significant artistic creativity, there is no requirement that a trademark be creative. In fact, trademarks may be obtained on ordinary words with no design and no particular typeface if the mark is shown to have acquired secondary meaning—association in the minds of consumers with a particular source of goods or services.

182. *Id.*

183. *Id.* at 93–94. The argument that the statute was a constitutional exercise of Commerce Clause power also failed. The Court found no expression of congressional intent to act pursuant to Commerce Clause powers in the legislative history and also held that the legislation went beyond regulation of federal commerce (under the 1879 interpretation of interstate commerce). *Id.* at 97–98. Subsequently, Congress created a trademark registration system, limited to federal commerce, under the Commerce Clause. Trademark Act of 1946 (Lanham Act), ch. 540, 60 Stat. 427–46 (1946) (current version at 15 U.S.C. §§ 1051–1141).

public in order to obtain trademark status¹⁸⁴ and therefore no motivation to disclose is required.

III. THE UNBALANCING EFFECT OF TECHNOLOGICAL ACCELERATION

A goal of the Intellectual Property Clause is technological progress. If successful, this results in new technologies displacing old technologies and the obsolescence of the old technology. The acceleration of technological change, particularly in the converging fields of computer software, music, video, television, and communications, coupled with the time required for industry standards to emerge and the power of technology industry lobbies has left the balance tilted in favor of rewarding innovators at the expense of further innovation and of consumers.

Congress recognized the issue in the 1970s in the context of the emergence of personal computers and created the National Commission on New Technological Uses of Copyrighted Works (“CONTU”), which it directed to review the emerging technology of personal computer software and recommend changes to the copyright statute.¹⁸⁵ CONTU reported:

Because of a lack of complete standardization among programming languages and hardware in the computer industry, one who rightfully acquires a copy of a program frequently cannot use it without adapting it to that limited extent which will allow its use in the possessor’s computer. The copyright law, which grants to copyright proprietors the exclusive right to prepare translations, transformations, and adaptations of their work, should no more prevent such use than it should prevent rightful possessors from loading programs into their computers. Thus, a right to make those changes necessary to enable the use for which it was both sold and purchased should be provided. The conversion of a program . . . to facilitate use would fall within this right, as would the right to add features to the program that were not present at the time of rightful

184. 15 U.S.C. § 1111.

185. CONTU was created by Congress “to assist the President and Congress in developing a national policy for both protecting the rights of copyright owners and ensuring public access to copyrighted works when they are used in computer and machine duplication systems, bearing in mind the public and consumer interest.” NAT’L COMM. ON NEW TECHNOLOGICAL USES OF COPYRIGHTED MATERIAL, FINAL REPORT 3 (July 31, 1978) [hereinafter *CONTU FINAL REPORT*].

acquisition.¹⁸⁶

In response to the report, Congress enacted § 117 of the copyright statute in almost the identical language recommended by CONTU¹⁸⁷ and thereby, in the specific context of computer software, intended to be used on a machine which potentially could become obsolete while the software remained useful, Congress effectively authorized the purchaser of the software to avoid technological obsolescence by adapting the software to a different machine.¹⁸⁸

The issue addressed by Congress and CONTU goes beyond computer software and more generally applies to emerging technologies, especially when rapid development of a technology is associated with a lack of standardization. Computer technology was the first recognized instance of a rapidly developing field, broadly marketed to consumers, with competing standards that threatened to render early

186. *Id.* at 13.

187. The Commission's proposed statutory changes were enacted almost verbatim. H.R. REP. NO. 96-1307, pt. 1, at 2 (1980), *reprinted in* 1980 U.S.C.C.A.N. 6460, 6461-62. *See* Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1252 (3d Cir. 1983) (“[W]e can consider the CONTU Report as accepted by Congress since Congress wrote into law the majority's recommendations almost verbatim.”). As enacted, 17 U.S.C. § 117 (2006) provides:

Limitation on exclusive rights: computer programs

(a) Making of additional copy or adaptation by owner of copy.—Notwithstanding the provisions of 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

- (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or
- (2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

(b) Lease, sale, or other transfer of additional copy or adaptation.—Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.

17 U.S.C. § 117(a)–(b) (2006). The one change is from the Commission's recommended “rightful possessor” to “owner” in the introductory phrase of 117(a)(2). *Cf.* CONTU FINAL REPORT, *supra* note 185, at 12 with 17 U.S.C. § 117(a)(2).

188. Adapting a computer program (in copyright terms, creating a derivative work) to run under a newer operating system does not constitute copyright infringement. *Aymes v. Bonelli*, 47 F.3d 23, 26–27 (2d Cir. 1995); *Krause v. Titleserv, Inc.*, 402 F.3d 119, 125–29 (2d Cir. 2005).

purchases obsolete and unusable. The problem, however, is the same in any field meeting those criteria.

IV. THE ROLE OF THE CONSUMER IN PROMOTING PROGRESS (EARLY ADOPTERS)

The Intellectual Property Clause authorizes Congress to promote progress by granting certain rights to innovators—authors and inventors. Because of the specific mention of authors and inventors in the enabling clause, it is not surprising that congressional attention has focused on their rights to a greater degree than those of competitors and consumers. As discussed above,¹⁸⁹ Congress has enacted specific exemptions to both the copyright and patent statutes in order to protect specific activities, but it has been the courts that have recognized general exemptions.

Overly broad intellectual property rights injure competitors. Fundamental blocking¹⁹⁰ of intellectual property rights may prevent competitors from entering a field, thereby slowing innovation by forcing competitors to work around the protected technology (which delays emergence of industry standards) or wait until the blocking rights in the technology expire (which, in the case of copyrights, extends beyond the original author’s lifetime).

This blocking phenomenon has a secondary effect on consumers, especially on a particularly valuable and vulnerable class of consumers known as “early adopters,” consumers who purchase early stage technology before an industry standard is established,¹⁹¹ and in turn has an effect on innovators as well.

Because intellectual property law provides no direct reward for innovation but relies instead on profits made in the marketplace as the incentive,¹⁹² advancing progress requires more than the innovative idea—it also requires the funding necessary to develop the idea into a commercial product and funding depends on investors’ evaluations of the likelihood that the product is likely to succeed. Innovation is

189. See discussion *supra* Part I.

190. A “blocking” right is one that prevents a potential competitor from incorporating a particular, desirable, feature in a product.

191. Recent examples of early adopters would include buyers of Radio Shack’s Tandy computer, Sony’s Betamax videorecorder or Toshiba’s HDD high-definition DVD players.

192. “[M]onopolies . . . are granted for certain years to ingenious discoveries in countries, and more necessary in this, as the government has no resources to reward extraordinary merit.” Remarks on the Amendments to the Federal Constitution, 6 American Museum or Repository of Ancient and Modern Fugitive Pieces 303 (1789).

important, but not sufficient. For example, more than 7.5 million patents have been issued, and more than 33 million copyrights have been registered.¹⁹³ However, only a small percentage even recover the cost of obtaining the patent or copyright. Estimates of success rates vary widely, but all estimates are low. In 2005, the Patent Office estimated the odds of profiting from a patent at 1 in 500: “[O]dds are stacked astronomically against inventors. . . . There are around 1.5 million patents in effect . . . and of those, maybe 3,000 are commercially viable”¹⁹⁴ In 2000, the Patent Office had estimated the odds of commercial success at 1 in 50.¹⁹⁵ The U.S. Small Business Administration estimates that only 5% of patents result in products and of those, 50% to 80% fail.¹⁹⁶ Speculation on the success rate of inventions is a perennial sport, and some popular press reports put the odds of success as high as 5%¹⁹⁷ or as low as 0.02%.¹⁹⁸

Early adopters contribute significantly to the ultimate success or failure of new technologies. Early adopters are particularly important in the field of computers (and computer-based systems) because in order for an operating system to be commercially successful, there need to be applications available that will motivate users to purchase the system; programmers, motivated by the desire for sales, tend to write for operating systems that have a large user base. Thus, systems which attract a critical mass of early users build momentum, attracting more programmers writing more applications, thus making the system attractive to a larger group of purchasers.¹⁹⁹ The early adopters are

193. U.S. PATENT & TRADEMARK OFFICE, *supra* note 72; U.S. COPYRIGHT OFFICE, *supra* note 73, at 58. The copyright registration number understates the number of copyrights created, since registration has not been required, except as a prerequisite to litigation, since 1968. 17 U.S.C. § 408(a) (2006).

194. Karen E. Klein, *Avoiding the Inventor's Lament*, BUS. WK., Nov. 10, 2005, available at http://www.businessweek.com/smallbiz/content/nov2005/sb20051109_124661.htm (quoting Richard Maulsby, director of public affairs for the U.S. Patent & Trademark Office).

195. Susan Glairon, *Inventors Find Joy in Journey from Idea to Product*, TRIB. BUSINESS NEWS, Apr. 17, 2000.

196. Barbara Bradley, San Jose Mercury News, Feb. 18, 1990, p. 1 PC.

197. Tim Lemke, *Invention + Market Savvy = Successful Product*, WASH. TIMES, Apr. 16, 2001, at D8; Caryne Brown, *Making Money Making Toys*, BLACK ENTER., Nov. 1993, at 68.

198. “[E]xperts estimate that 1 out of 5,000 inventions have gone on to successful product launches.” Bevolyn Williams-Harold, *You've Got It Made!*, BLACK ENTER., June 1999, at 259–60.

199. The same pattern applies to the entertainment field as well. By contemporary accounts, the Sony Betamax was technically superior to VHS, but more prerecorded videos were made available on VHS than on Beta, making the VHS machines of greater value to

vulnerable because they must invest not only in the early stage technology but also in the time and effort required to make use of, and build systems around, the technology before it has been fully tested by large groups of users. They also risk losing their investment if a different technology prevails as the industry standard, rendering their choice obsolete. Examples would include libraries of Beta format videotapes or HDD format DVDs, neither of which can be played on current production machines.

Even assuming that Congress were to conclude that the sole measure of meeting the constitutional objective of furthering progress was the extent to which intellectual property laws rewarded innovators, in order for the innovators to obtain the indirect incentive of limited-term monopoly profits, market acceptance is necessary. Early adopters are an important factor in whether a product succeeds in the marketplace and therefore early adopters play a critical role in promoting progress. Innovators benefit²⁰⁰ when consumers adopt innovative (and unproven) technology. Early adopters, in turn, can more safely purchase and invest the time and resources necessary to implement early stage technology if they can be assured that their investment will be protected by being transferrable to a competing technology that prevails as the industry standard. In addition, since the general pattern of technology pricing is for prices to drop over time, early adopters overpay with respect to late followers. Therefore, a rational early adopter would weigh the increased price against the value of early access to the technology. To the extent the risk of early adoption is reduced, early adopters should be more willing to invest in early stage technology, thereby furthering the goal of promoting progress.

It would be reasonable to ask why, if the interests of consumers in general and early adopters in particular are so important to the

consumers since they provided a greater selection of movies. Ultimately, VHS was the more successful format and became the industry standard, forcing Sony to abandon its Betamax machine and begin producing VHS machines. More recently, Sony's BluRay and Toshiba's HDD high definition DVDs created a competition between these two standard-bearers to enlist content producers to license their works. When Toshiba lost that competition, it abandoned its HDD format.

200. The mere fact that infringement provides an incidental benefit to the copyright holder is generally not a defense to infringement. *Iowa State Univ. Research Found., Inc. v. Am. Broad. Cos.*, 621 F.2d 57, 62 (2d Cir. 1980). Here, however, the argument is not that early adopters should have a defense to an infringement action under the current statute, but rather that the statute should recognize their role in promoting progress and provide a statutory defense.

objective of progress, the Constitution failed to include any explicit provision recognizing their interests. There are several possible answers, although as noted above,²⁰¹ all are speculation. It is arguable that the preamble to the Intellectual Property Clause is in effect a public domain provision designed to protect consumers by requiring that in granting rights to authors and inventors Congress take the goal of promoting progress into account. It is also possible that the Framers expected that the “limited times” provision of the Intellectual Property Clause was a sufficient protection and it assumed that future Congresses would stay close to the terms of protection that were then in effect in the colonies and England—approximately fourteen years—especially given the comparatively slow pace of technological innovation at the time. The first Congress’s adoption of comparable time periods for protection may be considered persuasive evidence of constitutional intent.²⁰² Finally, it should be remembered that words were considerably more expensive in the eighteenth century than they are today, both in terms of the cost to produce and the cost to copy. Thus, the better question might be not why no Public Domain Clause was included, but rather why an Intellectual Property Clause was included,²⁰³ particularly when the philosophy of the Constitution was “[t]o insert essential principles only, lest the operations of government should be clogged by rendering those provisions permanent and unalterable, which ought to be accommodated to times and events.”²⁰⁴ One explanation may be that the purpose was to assure that exclusive rights were only granted to promote progress rather than as the political rewards that had been common in England.²⁰⁵ Another explanation that has been offered is that the purpose of including the clause was “not so much as an express authority to promote the progress of science and the useful arts, but rather as a means of ensuring authority to do so in a particular way, namely, by securing exclusive rights for limited times”²⁰⁶

201. See discussion *supra* Part IV.

202. *Harmelin v. Michigan*, 501 U.S. 957, 980 (1991) (“The actions of the First Congress . . . are of course persuasive evidence of what the Constitution means . . .”).

203. Walterscheid, *supra* note 2, at 26.

204. THE RECORDS OF THE FEDERAL CONVENTION OF 1787, *supra* note 22, at 137 (quoting Edmund Randolph). See also *Wright v. United States*, 302 U.S. 583, 588 (1938) (when interpreting the Constitution, it is presumed “that no word was unnecessarily used, or needlessly added”); *Marbury v. Madison*, 5 U.S. (1 Cranch) 137, 174 (1803) (“It cannot be presumed that any clause in the constitution is intended to be without effect . . .”).

205. See discussion *supra* Part I.

206. Walterscheid, *supra* note 2, at 33.

Regardless of the explanation, it is clear that the clause was written against an anti-monopoly background²⁰⁷ and that its objective was to promote progress with rewards to innovators a secondary consequence rather than the objective.²⁰⁸

V. CONGRESSIONAL AND JUDICIAL BALANCE POINTS

A. Congress's Balance

Congress's only tool under the Intellectual Property Clause is the grant of exclusive rights; “[i]t is Congress that has been assigned the task of defining the scope of the limited monopoly that should be granted to authors”²⁰⁹ The “exclusive” rights, which Congress has the power to grant, are exclusive in the sense of “right to exclude” rather than “all-inclusive rights.” Thus, there is room to reward innovators with exclusive rights while still reserving to the public sufficient rights to guard against stifling further innovation. In recent attempts to strike the balance, Congress has tended to focus on the motivation to innovate side of the balance and paid less attention to the impediment to innovation side, perhaps because innovators include well-funded lobbyists.

This bias is understandable, even ignoring the influence of lobbying. It is hard to find an example of the technological obsolescence problem even as late as the last major copyright revision (1968).²¹⁰ When Congress revamped the copyright statute in 1968, it did perceive the broad outlines of the problem with respect to the then-emerging personal computer industry, and responded with a “placeholder” provision in the statute.²¹¹ Prior to that, other technology transformations did not lend themselves to shifting to the new technology while preserving values that had been built under the old technology. For example, when automobiles replaced horse drawn

207. See discussion *supra* Part I.

208. “The monopoly privileges that Congress may authorize are . . . [not] primarily designed to provide a special private benefit. . . . [They are] intended to motivate the creative activity of authors and inventors” *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984).

209. *Eldred v. Ashcroft*, 537 U.S. 186, 205 (2003) (quoting *Sony*, 464 U.S. at 429). It is also preferable that Congress, rather than the Courts, set the balance. Statutes can provide greater uniformity, clarity, and completeness than judicial decisions.

210. The last major patent statute revision was even earlier (1952).

211. See discussion *supra* note 187. The “placeholder” provision (17 U.S.C. § 117) remains in place more than forty years later.

carriages, not much of the carriage industry was prevented from transitioning to the automobile industry by patents or copyrights. With the introduction of the phonograph, John Philip Sousa feared that the new technology would destroy the demand for live music,²¹² but those who had previously enjoyed live music had (by definition) no library of music that was trapped in the old technology by intellectual property rights. More recently, in the movie studios' views, Sony's introduction of the Betamax videorecorder threatened the film industry²¹³ but again Betamax owners had no pre-existing libraries to transfer.

Congress has provided situation-specific exceptions to the general rights of copyright holders.²¹⁴ For example, while 17 U.S.C. § 106(3) secures the exclusive right "to distribute copies or phonorecords," 17 U.S.C. § 109 permits the lawful owner of an embodiment of a copyrighted work to transfer that copy. Specific institutions—libraries,²¹⁵ schools,²¹⁶ broadcasters,²¹⁷ and the music industry²¹⁸—are at least partially insulated from copyright infringement liability. More broadly, although not as broadly as popularly believed, Congress codified a fair use defense.²¹⁹

Weighing against these specific exemptions, however, is the dramatic expansion of the term of copyright. Under the Berne Convention,²²⁰ the United States was required to provide copyright protection for a minimum term of the life of the author plus fifty years.²²¹ Congress

212. "John Philip Sousa predicted that recordings would lead to the demise of music. The phonograph, he warned . . . [would] put professional musicians out of work." Alex Ross, *The Record Effect: How Technology Has Transformed the Sound of Music*, *THE NEW YORKER*, June 6, 2005, at 94.

213. Reply Brief for the Petitioners, *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984) (No. 81-1687). Ironically (and arguably confirming the validity of the Founders' faith in the free market system to "promote progress"), Sony now is a major motion picture producer; and videotapes and DVDs account for more of its revenues than do theatrical releases.

214. The general rights are provided in 17 U.S.C. § 106 (2006).

215. 17 U.S.C. § 108.

216. 17 U.S.C. § 110.

217. 17 U.S.C. §§ 111 (cable systems), 112 (broadcasters), 114 (radio), 119 (secondary television transmissions), and 122 (satellite).

218. 17 U.S.C. §§ 115, 118.

219. 17 U.S.C. § 107, discussed in detail *supra* note 169.

220. Convention for the Protection of Literary and Artistic Works (1886) entered into force in the United States on March 1, 1989. Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, 102 Stat. 2853 (1988).

221. Retroactivity is not required by the Berne Convention and not all countries made the extension retroactive.

passed implementing legislation and justified the extensions as follows:

The purpose of the bill is to ensure adequate copyright protection for American works in foreign nations and the continued economic benefits of a healthy surplus balance of trade in the exploitation of copyrighted works. The bill accomplishes these goals by extending the current U.S. copyright term for an additional 20 years. Such an extension will provide significant trade benefits by . . . ensuring fair compensation for American creators who deserve to benefit fully from the exploitation of their works. Moreover, by stimulating the creation of new works and providing enhanced economic incentives to preserve existing works, such an extension will enhance the long-term volume, vitality, and accessibility of the public domain.²²²

Supporters argued that the extension was necessary because life expectancy had risen dramatically since 1790 when the first copyright act (setting a fourteen-year term and one fourteen-year renewal term) was passed.²²³ However, nothing in the Constitution or the adoption debates provides any support for the notion that copyright terms should be based on the author’s lifespan, and patents, which arise under the same clause, have had approximately the same fixed term throughout the history of the Constitution. Some supporters felt the term extension did not go far enough in rewarding authors. Congresswoman Mary Bono wanted a perpetual term but was “informed by staff that such a change would violate the Constitution” and suggested considering Jack Valenti’s²²⁴ proposal for a term of “forever less one day.”²²⁵ The courts have uniformly held, however, that “[t]he monopoly privileges that Congress may authorize are neither unlimited nor primarily designed to provide a special private benefit. . . . [They are] intended to motivate the creative activity of authors and inventors . . . and to allow the public access to the products of their genius after the limited period of exclusive control has expired.”²²⁶ Supporters therefore also argued that a dramatic extension of copyright term would result in more works

222. S. REP. NO. 104-315, at 3 (1996).

223. 144 CONG. REC. S12377 (daily ed. Oct. 12, 1998) (statement of Sen. Hatch on the passage of the Sonny Bono Copyright Term Extension Act).

224. Jack Valenti was president of the Motion Picture Association of America.

225. 144 CONG. REC. H9952 (daily ed. Oct. 7, 1998).

226. *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984).

being made available to the public. Interestingly, though, Disney's response to the extended term of protection was to adopt precisely the opposite strategy, taking existing works off the market, offering them for limited times then placing them "tucked [away] in the vault."²²⁷

The 1998 Sonny Bono Copyright Term Extension Act²²⁸ extended the term of existing and future copyrights by approximately twenty years. Given the current rate of technological advance, it is unlikely that any current method for distributing data other than paper will still be available when today's copyrights expire. The act was challenged as violating the constitutional limits of Congress's authority in the intellectual property field, but upheld in *Eldred v. Ashcroft*.²²⁹ As Justice Stevens pointed out, in the eighty years preceding the *Eldred* decision, only one year's worth of copyrighted material had fallen into the public domain.²³⁰

In addition to extending the term of copyright, Congress took additional steps to protect content providers. The Audio Home Recording Act of 1992 ("AHRA") was enacted to deal with the perceived threat of digital audio recording technology, which permitted repeated reproduction of music files without significant loss of sound quality. The AHRA requires that devices capable of making digital copies of music incorporate copy controls,²³¹ and imposes royalties on manufacturers, distributors, and importers of such devices and the media used for digital copying.²³² In exchange, the Act exempts noncommercial consumer copying of music from copyright infringement.²³³ Note that the activities protected by AHRA are

227. Thomas K. Arnold, 'Bambi' is Back—for 70 'II' Days, USA Today.com (Feb. 6, 2006), http://www.usatoday.com/life/movies/news/2006-02-06-bambi_x.htm (noting that at the time thirty films were scheduled for re-release moratorium and that the strategy allowed maintaining prices—"[i]f you keep it on the shelves, the only option you have is to keep repricing it, lower and lower."); Robert La Franco, *Eisner's Bumpy Ride*, FORBES, July 5, 1999, at 50; *Vaulting the Disney Gap and Its Plan for Profits*, DailyTrojan.com, Jan. 25, 2005, <http://dailytrojan.com/?s=Vaulting+the+Disney+Gap+and+its+Plan+for+Profits> ("Walt Disney Company seeks to drive up the demand for their supposed 'limited' amount of discs"; noting that MGM followed a similar strategy with its James Bond films).

228. Pub. L. 105-298, 112 Stat. 2827 (1998) (*upheld by Eldred v. Ashcroft*, 537 U.S. 186 (2003)).

229. 537 U.S. 186. The case was initially filed against Attorney General Janet Reno, but her successor John Ashcroft was substituted.

230. *Eldred*, 537 U.S. at 241 (Stevens, J., dissenting).

231. 17 U.S.C. § 1002 (2006).

232. 17 U.S.C. §§ 1003–1005.

233. 17 U.S.C. § 1008 provides:

No action may be brought under this title alleging infringement of copyright based

broader than the right of technology-shifting; the AHRA protects what would otherwise be an infringement of copyright by someone who has not even acquired ownership of the work in an earlier technological form.

Finally, under the authority of the Trade-Related Aspects of Intellectual Property Rights (“TRIPS”) treaty, Congress passed an anti-bootlegging criminal statute prohibiting recording or distribution of live musical performances for commercial advantage or private financial gain.²³⁴

B. The Courts’ Balance

1. Deference to Congressional Balancing

The Supreme Court has consistently held that “the powers of Congress to legislate upon the subject of patents is plenary by the terms of the Constitution, and as there are no restraints on its exercise, there can be no limitation of their right to modify them at their pleasure”²³⁵ and that, so long as the term of exclusive rights is only for a limited period, it may even extend the duration of existing copyrights and patents.²³⁶ Courts have been extremely deferential to the term of protection that Congress chooses when striking the appropriate balance.²³⁷

on the manufacture, importation, or distribution of a digital audio recording device, a digital audio recording medium, an analog recording device, or an analog recording medium, or based on the noncommercial use by a consumer of such a device or medium for making digital musical recordings or analog musical recordings.

The main purpose of this section was “to ensure the right of consumers to make analog or digital audio recordings of copyrighted music for their *private, noncommercial use*.” Recording Indus. Ass’n of Am. v. Diamond Multimedia Sys., 180 F.3d 1072, 1079 (9th Cir. 1999) (emphasis in original) (quoting S. REP. 102-294 at 86 (1992)).

234. 18 U.S.C. § 2319A (2006). To date, court decisions on the application of the act have split. See discussion *infra* Part V.B.

235. McClurg v. Kingsland, 42 U.S. (1 How.) 202, 206 (1843).

236. Evans v. Jordan, 13 U.S. (9 Cranch) 199, 204 (1815); Bloomer v. McQuewan, 55 U.S. (14 How.) 539, 552–54 (1852); Bloomer v. Millinger, 68 U.S. (1 Wall.) 340, 349–52 (1864); Eunson v. Dodge, 85 U.S. (18 Wall.) 414, 417 (1873). The CTEA included retroactive provisions, extending the term of copyrights in works that had already been created, which were upheld in *Eldred v. Ashcroft*, 537 U.S. 186 (2003).

237. *Eldred*, 537 U.S. at 256–57 (Breyer, J., dissenting) (holding the CTEA twenty-year extension of copyright for works already in existence constitutional despite Justice Breyer’s demonstration that the term was nearly unlimited from a discounted cash value perspective).

2. Judicial Independent Judgment

Although the courts have deferred to Congress's judgment on the question of appropriate terms of protection, the Intellectual Property Clause "is both a grant of power and a limitation . . . [and] Congress . . . may not overreach the restraints imposed by the stated constitutional purpose."²³⁸ Congress's power, even if plenary, is still limited by the Constitution, as recognized in both *Graham v. John Deere Co.* and *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*²³⁹

Copyright and patent laws are distinct implementations of the Intellectual Property Clause, but their common ancestry explains broad similarities between the two areas of law.²⁴⁰ Both grant monopoly rights, in each case as an unavoidable consequence of the primary goal of providing benefits to the public rather than primarily for the benefit of authors or inventors. In each area, early judicial decisions established areas which were exempt from the monopoly.²⁴¹ The Supreme Court sees each as a source of guidance in the other.²⁴²

238. *Graham v. John Deere Co.*, 383 U.S. 1, 5–6 (1966).

239. In *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141 (1989), the Court held that the preamble limited congressional power and that Congress could not remove technology from the public domain because doing so would thwart the constitutional mandate to promote the progress of science and the useful arts. Further, as this Court has held, in light of the limitations built into "[t]he Patent Clause itself reflects a balance between the need to encourage innovation and the avoidance of monopolies which stifle competition without any concomitant advance in the 'Progress of Science and useful Arts.'" *Id.* at 146. In *Graham*, 383 U.S. at 5–6, the Court held that:

[I]t must be remembered that the federal patent power stems from a specific constitutional provision which authorizes the Congress 'To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries.' Art. I, § 8, cl. 8. The clause is both a grant of power and a limitation. . . . The Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby. Moreover, Congress may not authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available.

240. Both involve the grant of a limited monopoly: a patent owner has a set of exclusive rights, set forth in 35 U.S.C. § 271 (2006), similar to those of a copyright owner, set forth in 17 U.S.C. § 106. Both distinguish between the rights of the owner of the intellectual property right and the rights of the purchaser of a product embodying the intellectual property right. Both have developed doctrines whereby the purchaser of a product embodying the intellectual property right obtains ownership of the product plus a license to use the embodied intellectual property with respect to that product.

241. *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 261 (1850).

242. *See, e.g., Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 442 (1984).

We recognize there are substantial differences between the patent and copyright

While deferring to Congress’s judgment in areas such as the term of protection, the courts have intervened in several important areas to protect the constitutional requirement that the protection furthers progress. The current patent statute prohibits granting patents for obvious advances:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.²⁴³

This section was not added to the statute until 1952. The principle it codified, however, was announced by the Supreme Court in 1850²⁴⁴ as necessary to promote progress by keeping inventions that technically met the statutory requirement of novelty but were trivial modifications of existing technology from becoming patented and therefore impeding development of the field. The courts have also read restrictions into the list of categories eligible for patent protection in order to preserve fundamental discoveries of laws of nature as an area open to all innovators.²⁴⁵

In the copyright area, the Court has recognized that fair use is an

laws. But in both areas the contributory infringement doctrine is grounded on the recognition that adequate protection . . . may require the courts to look beyond actual duplication of a device or publication to the products or activities that make such duplication possible.

Id.; *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 380 F.3d 1154 (2006).

243. 35 U.S.C. § 103(a) (2006).

244. *Hotchkiss*, 52 U.S. (11 How.) at 261.

245. *Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981). Although the Federal Circuit opined that:

The Supreme Court has not been clear . . . as to whether such subject matter is excluded from the scope of § 101 because it represents laws of nature, natural phenomena, or abstract ideas. . . . The Supreme Court also has not been clear as to exactly what kind of mathematical subject matter may not be patented. The Supreme Court has used, among others, the terms “mathematical algorithm,” “mathematical formula,” and “mathematical equation” to describe types of mathematical subject matter not entitled to patent protection standing alone. The Supreme Court has not set forth, however, any consistent or clear explanation of what it intended by such terms or how these terms are related, if at all.

In re Alappat, 33 F.3d 1526, 1543 n.19 (Fed. Cir. 1994).

exception from copyright rights, and that “time-shifting,” although resulting in what would otherwise be the making of an infringing copy, is likewise protected as required by the constitutional duty to promote progress.²⁴⁶

The lower courts have recognized a similar exception for what has been referred to as “place-shifting” or “space-shifting.”²⁴⁷ In *In re Aimster Copyright Litigation*, the court noted a hypothetical list of activities, which would not be considered infringement, although they fall within the literal definition of the copyright statute. Of particular interest, the court suggested:

Someone might own a popular-music CD that he was particularly fond of, but he had not downloaded it into his computer and now he finds himself out of town but with his laptop and he wants to listen to the CD, so he uses Aimster’s service to download a copy. This might be a fair use rather than a copyright infringement, by analogy to the time-shifting approved as fair use in the *Sony* case.²⁴⁸

In *United States v. Martignon*, a New York district court refused to enforce the anti-bootlegging statute²⁴⁹ and dismissed an indictment, holding the statute unconstitutional as violating two restrictions in the Intellectual Property Clause: granting protection for a work that had not been “fixed” (and was therefore not a “writing”) and avoiding the

246. In *Sony*, it was shown that Sony knew its videotape recorder would, in addition to being used for playing home movies (which were not alleged to infringe plaintiffs’ copyrights), also be used for “time-shifting” (recording a television program for playback at a later time). *Sony*, 464 U.S. at 423. The Court held this time-shifting to be fair use, and therefore not an infringement of the copyright owners’ exclusive rights. *Id.* at 442. See also *Atari Games Corp. v. Nintendo Inc.*, 975 F.2d 832, 843 (Fed. Cir. 1992) (fair use exception); *Sega Enters. Ltd. v. MAPHIA*, 857 F. Supp. 679, 687 (N.D. Cal. 1994) (to invoke fair use exception).

247. *Recording Indus. Ass’n of Am. v. Diamond Multimedia Sys.*, 180 F.3d 1072, 1079 (9th Cir. 1999); *In re Aimster Copyright Litig.*, 334 F.3d 643, 652 (7th Cir. 2003). The Court characterizes the transfer in this hypothetical case as “fair use” by analogy to the time-shifting use in *Sony*. An alternative route to the same result would be that it is a use within the implied license granted to the purchaser of the CD. Yet, a third path would be to hold the hypothetical transfer protected by the AHRA, although that would place the decision in conflict with *Recording Industries Ass’n*.

248. *In re Aimster*, 334 F.3d at 652.

249. 18 U.S.C. § 2319(A) (2006), enacted pursuant to the Trade-Related Aspects of Intellectual Property Rights (TRIPS) treaty. The statute proscribed the unauthorized recording or distribution of a live musical performance for commercial advantage or private financial gain.

limited times requirement.²⁵⁰ “Congress may not side-step the Copyright Clause’s limitations through legislating under the Commerce Clause.”²⁵¹ In *United States v. Moghadam*, a defendant was convicted under the same statute²⁵² although the Eleventh Circuit held the statute could not be supported by the Intellectual Property Clause²⁵³ and relied instead on the Commerce Clause as a source of authority.

VI. RESTORING THE BALANCE

The courts have taken steps toward restoring the balance through recognition of time-shifting and place-shifting exceptions to copyright owners’ rights and repair exceptions to patent owners’ rights. These are, however, merely pieces of the solution. Furthermore, even though courts are recognizing user rights in these areas, there are transaction costs associated with vindicating specific rights through litigation. Of particular concern, different rules have been applied to copyrights and patents. While this posed little practical problem in the nineteenth century, the recent convergence of technology in the fields of computer software, communications, and media has blurred the lines between what is protected by patent and what is protected by copyright,²⁵⁴ and a single standard would provide needed clarity. As argued above, reducing uncertainty reduces the cost to early adopters and therefore promotes progress. What is now required to restore the balance is a generalized technology-shifting exception to the rights of intellectual property owners. That exception would include at least four substantive

250. 346 F. Supp. 2d 413 (S.D.N.Y. 2004).

251. *Id.* at 426.

252. 175 F.3d 1269 (11th Cir. 1999).

253. The court found the statute constitutional as within Congress’s authority under the Commerce Clause because it was “not fundamentally inconsistent with the fixation requirement of the Copyright Clause.” *Id.* at 1281. The Eleventh Circuit assumed “*arguendo*, without deciding, that the Commerce Clause could not be used to avoid a limitation in the Copyright Clause if the particular use of the Commerce Clause . . . were fundamentally inconsistent with the particular limitation in the Copyright Clause,” *id.* at 1280 n.12, but concluded that “extending quasi-copyright protection to unfixed live musical performances is in no way inconsistent with the Copyright Clause, even if that Clause itself does not directly authorize such protection.” *Id.* at 1280.

254. Software companies once thought software unpatentable. The Patent Office agreed and initially took the position that software was not patentable. Examination of Patent Applications on Computer Programs, 33 Fed. Reg. 15,609-10 (Oct. 22, 1968). Software patents now generate annual patent licensing revenue in the billions. In 2006, IBM alone earned more than \$ 1 billion in royalty revenue, largely from software patents. IBM, 2006 Annual Report, 80, *available at* ftp://ftp.software.ibm.com/annualreport/2006/2006_ibm_annual.pdf (last visited Jan. 9, 2010).

rights, all flowing from the general right of continued access to data (in its broadest sense) which has been lawfully acquired or created:

1. The right to “move to the winning standard.”

This right would not guarantee a cost-free upgrade to a new technology but would simply guarantee that no legal impediments be placed in the way of the transfer. Such a right would reduce the risk of adopting a technological advance while there is still competition to become the industry standard and would make it easier for users to move to new technologies earlier in their development cycle. Since technologies must become commercially successful in order to provide a return to the innovators, and since money has a time value, facilitating early adoption of technologies helps promote progress. An example would be the right to copy a Beta videotape to a VHS videotape.

2. The right to remain up to date.

Broader than the right to move from a losing contender for industry standard to the winner, this right would likewise not guarantee a cost-free upgrade to a newer version of technology but would simply guarantee that no legal impediments be placed in the way of the upgrade. Such a right would assure that a producer of technology could not force users to choose between upgrading to other technology or losing meaningful access to data.

3. The right to choice of embodiment.

Broader still than the right to remain up to date, this right would again not guarantee a cost-free conversion from one medium to another but would simply guarantee the absence of legal impediments. In the music context, it would guarantee that a purchaser of music in any format could not be prevented from embodying that music in a different format or medium in order to play it on whatever device was most convenient for the user. An example would be the right to transfer a tune from an 8-track tape to CD. Arguably, in the context of digital music this right is already provided by § 117 of the Copyright Act.

4. The right to terminate Digital Rights Management.

Faced with the problem that digital copies had become cheap and simple to make and resulted in little or no degradation from the original, Congress enacted legislation requiring equipment manufacturers to provide mechanisms to prevent copying and made it illegal to provide technology that subverted those mechanisms. Consistent with the Intellectual Property Clause requirement that exclusive rights be granted for limited times, any digital rights management restraints that have been incorporated in a work should be

rendered inoperative no later than the date on which the last of the intellectual property rights protected by the DRM expires. In the patent context, keeping an invention from the public outside of the term of the patent constitutes suppression, resulting in loss of patent rights, if prior to filing a patent application, and a possible violation of antitrust laws if after the expiration of the patent. The goal of tying DRM to the copyright term could be accomplished by incorporating a time limit in the DRM device itself, or by placing codes for disabling the device in escrow and granting users access to the escrow at the appropriate time.

A. The Preferred Solution: A Statutory Right to “Technology-Shifting”

“[I]t is Congress that has been assigned the task of defining the scope of the limited monopoly that should be granted to authors,”²⁵⁵ and there are several reasons why it would be preferable that Congress do so. A statute could provide a clear, comprehensive, uniform, and certain set of rights much more quickly than a series of cases could, even in the unlikely event that all of the cases were consistent and the collection of cases were comprehensive in coverage.

Congress has the power to impose the proposed restrictions, has exercised similar power in the past, and is limited only by the constitutional requirement that it grant “exclusive” rights. Congress has the power to decide which inventions and works of authorship to protect and for how long.²⁵⁶ The exclusive right that Congress is authorized to secure to authors and inventors owes its existence solely to the acts of Congress securing it,²⁵⁷ from which it follows that the rights granted by a patent or copyright are subject to such qualifications and limitations as Congress sees fit to impose.²⁵⁸

Examples of prior limitations, which Congress has placed on a patent or copyright owner’s exclusive rights include the following:

In the copyright area, Congress has repeatedly provided exceptions to copyright owners’ rights without running afoul of the requirement to grant “exclusive” rights. It has provided a fair use exception to all types

255. *Eldred v. Ashcroft*, 537 U.S. 186, 205 (2003) (quoting *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984)).

256. “Congress is free to amend § 101 so as to exclude from patent protection organisms produced by genetic engineering.” *Diamond v. Chakrabarty*, 447 U.S. 303, 318 (1980) (holding living organisms patentable under the current statute); *see also Eldred*, 537 U.S. at 186 (Congress is free to set the term of copyrights.).

257. *Wheaton v. Peters*, 33 U.S. (8 Pet.) 591, 660 (1834); *Holmes v. Hurst*, 174 U.S. 82, 86 (1899).

258. *Wheaton*, 33 U.S. at 662; *Evans v. Jordan*, 13 U.S. (9 Cranch) 199, 204 (1815).

of copyrights.²⁵⁹ It has also provided exceptions applicable to certain types of copyrights, for example those relating to computer programs,²⁶⁰ and those covering sound recordings,²⁶¹ and has created exceptions to a copyright owner's exclusive rights (for example, fair use,²⁶² library and archive copying,²⁶³ ephemeral recordings,²⁶⁴ and compulsory licenses for phonorecords and cable).²⁶⁵

Congress has also chosen to exempt certain activities from copyright infringement but imposed a tax to generate a fund to be distributed to the copyright owners to deal with digital copying of audio performances.²⁶⁶ The Copyright Royalty Tribunal system is another

259. 17 U.S.C. § 107 (2006), discussed *supra* note 169.

260. 17 U.S.C. 117, discussed *supra* note 187.

261. 17 U.S.C. § 106(3) provides the exclusive right "to distribute copies or phonorecords . . . to the public by sale or other transfer of ownership, or by rental, lease, or lending." However, 17 U.S.C. § 109 (to which 106 is subject) permits the lawful owner of an embodiment of a copyrighted work to transfer that copy.

262. 17 U.S.C. § 107, discussed *supra* note 169, provides that: "the fair use of a copyrighted work . . . for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright."

263. 17 U.S.C. § 108(a) provides that:

[I]t is not an infringement of copyright for a library or archives . . . to reproduce no more than one copy or phonorecord of a work . . . or to distribute such copy or phonorecord, under the conditions specified by this section if—(1) the reproduction or distribution is made without any purpose of direct or indirect commercial advantage; (2) the collections of the library or archives are (i) open to the public, or (ii) available not only to researchers affiliated with the library or archives or with the institution of which it is a part, but also to other persons doing research in a specialized field; and (3) the reproduction or distribution of the work includes a notice of copyright . . .

264. *See* 17 U.S.C. § 112 (2006).

265. *See* 17 U.S.C. § 111(d) (compelling license for cable systems); 17 U.S.C. § 115(a) (compelling license for distributed phonorecords).

266. "A 'digital audio copied recording' is a reproduction in a digital recording format of a digital musical recording, whether that reproduction is made directly from another digital musical recording or indirectly from a transmission." 17 U.S.C. § 1001(1).

A "digital audio recording device" is any machine or device of a type commonly distributed to individuals for use by individuals, whether or not included with or as part of some other machine or device, the digital recording function of which is designed or marketed for the primary purpose of, and that is capable of, making a digital audio copied recording for private use . . .

17 U.S.C. § 1001(3).

No action may be brought under this title alleging infringement of copyright based on the manufacture, importation, or distribution of a digital audio recording device, a digital audio recording medium, an analog recording device, or an analog recording medium, or based on the noncommercial use by a consumer of such a

example of the royalty/tax coupled with mandatory licensing regime.²⁶⁷

In the patent area, Congress may exercise the legislative right to exclude certain classes of inventions from patent protection²⁶⁸ and has done so both generally²⁶⁹ and with respect to specific types of technology. For example, Congress has limited patents to four categories of statutory subject matter.²⁷⁰ Congress has permitted patents to be granted for medical procedures but has limited enforcement of those patents to the point where there is no practical value to such patents. Congress has made patents on business methods subject to special defenses not applicable to other types of patents. In addition, certain inventions related to atomic weapons are completely excluded from patentability even though they are statutory subject matter.²⁷¹

B. Judicial Intervention

For the reasons discussed above, legislative action is the preferred way to restore the balance. There are, however, advantages to judicial action in areas of rapid technological advances in general. In order to pass a statute, it is necessary that the problem be recognized, that its consequences be predicted, and that political agreement on the nature of the problem and the appropriate solution be reached—generally a time-consuming process. Therefore, until Congress takes such action, there is support for judicial recognition that current statutory rights are subject to a constitutionally required right of technology-shifting.

It is arguable that the copyright first sale doctrine, permitting the owner of a copyrighted work to “transfer” it, is by its terms broad enough to permit “transfer” not to a new owner but to a new format.

device or medium for making digital musical recordings or analog musical recordings.

17 U.S.C. § 1008. In effect, taxes are paid on the medium used for copying, the revenue is distributed to copyright holders, and end-users are immune from liability for copyright infringement.

267. This system is equivalent to a tax coupled with exemption from infringement liability.

268. *See, e.g.*, 42 U.S.C. § 2181(a) (excluding certain nuclear energy technology from patent protection); *see also* *Diamond v. Chakrabarty*, 447 U.S. 303, 318 (1980) (“Congress is free to amend § 101 so as to exclude from patent protection organisms produced by genetic engineering.”).

269. Examples of general exceptions include the requirement that to be patentable an invention must fall within one of four enumerated categories. 35 U.S.C. § 101.

270. *Id.*

271. The exclusion is contained, not in the patent statute, but in the Atomic Energy Act, 42 U.S.C. § 2181(a) (2006).

To the extent the technology in question is a computer program within the meaning of the copyright statute,²⁷² the owner of a lawful copy (for example, music embodied in a CD) already has the right, under 17 U.S.C. § 117, to make copies and adaptations required for utilization in conjunction with a machine, or by extension, necessary for the “effective” use of the embodiment to enjoy the music.²⁷³ The statutory definition of a “computer program” as “a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result”²⁷⁴ does not resolve a grey area between instructions and “data”—as programmers know, “one man’s data is another man’s command.”²⁷⁵ Courts could therefore intervene on narrow grounds of statutory interpretation.

To the extent the technology in question is a consumer product, there is another avenue of narrow intervention based on consumer expectations as to the rights acquired upon purchase of a product incorporating protected technology (for example a CD or DVD). The distinction between the product and the incorporated intellectual property is recognized in both copyright and patent law.²⁷⁶ For example, purchasers of CDs or DVDs do not acquire the copyright in the music or movie, but they certainly acquire something more than mere ownership of the plastic. At a minimum, they also acquire a license to play the music or watch the movie.²⁷⁷ The general presumption is that a

272. 17 U.S.C. § 101 defines a “computer program” as “a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.” 17 U.S.C. § 117 then provides the substantive user rights (or, alternatively, restrictions on the rights granted the copyright owners) associated with computer software.

273. See 6 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT*, § 8.08[B][1][b] (Dec. 2009) (“[t]he trend is to read Section 117 broadly” (quoting *DSC Communs. Corp. v. Pulse Communs.*, 976 F. Supp. 359, 362 (E.D. Va. 1997), *rev’d in part*, 170 F.3d 1354 (Fed. Cir. 1999), *cert. denied*, 528 U.S. 923 (1999) and “loading onto the hard drive should be viewed as ‘essential’ to the optimal utilization of the subject computer program marketed on floppies or on discs”)).

274. 17 U.S.C. § 101.

275. This aphorism appears to have originated in a 1973 presentation by C. J. Stephenson of Stanford University. C. J. Stephenson, *On the Structure and Control of Commands (One Man’s Data Are Another Man’s Command)*, PROCEEDINGS OF THE FOURTH SYMPOSIUM ON OPERATING SYSTEM PRINCIPLES (Thomas J. Watson Research Center, N.Y.).

276. “Ownership of a copyright, or of any of the exclusive rights under a copyright, is distinct from ownership of any material object in which the work is embodied.” 17 U.S.C. § 202 (2006).

277. The CONTU Final Report states that “[o]bviously, creators, lessors, licensors, and vendors of copies of [computer] programs intend that they be used by their customers, so that rightful users would but rarely need a legal shield against potential copyright problems. It is

license is perpetual unless the parties indicate otherwise.²⁷⁸ It would seem inconsistent with the concept of ownership if a purchaser lost the right to enjoy the purchase simply because the machinery necessary to play it became obsolete and no longer available. Congress certainly did not think so, at least in terms of copyright protection. The CONTU Final Report states, “Obviously, . . . vendors [of computer programs]²⁷⁹ intend that they be used by their customers, so that rightful users would but rarely need a legal shield against potential copyright problems.”²⁸⁰ Early advertisements for phonographs and records emphasized the value of owning a record: the music would be “yours for keeps,”²⁸¹ and John Philip Sousa contemplated a cupboard full of such recordings supplanting the demand for live performances.²⁸² Patent law’s authorization of repair of patented products so as to extend their utility similarly supports the concept that the license is perpetual and medium-independent.²⁸³ On the other hand, medium-limited licenses open the

easy to imagine, however, a situation in which the copyright owner might desire, for good reason or none at all, to force a lawful owner or possessor of a copy to stop using a particular program. One who rightfully possesses a copy of a program, therefore, should be provided with a legal right to copy it to that extent which will permit its use by that possessor.” CONTU FINAL REPORT, *supra* note 185, at 13.

278. “[A patent] license without expressed limit as to time is a license for the unexpired life of the patent.” *Fitch v. Shubert*, 20 F. Supp. 314, 316 (S.D.N.Y. 1937) (citing *St. Paul Plow-Works v. Starling*, 140 U.S. 184 (1891)); “[w]here an assignment or license [of a copyright] does not expressly prescribe the period or term of its duration, it will generally be construed (in the absence of evidence of a contrary intent) to be effective for the duration of the then existing copyright term of the work.” *TV Globo Ltda. v. Brazil Up-Date Weekly, Inc.*, 50 U.S.P.Q.2d (BNA) 1478, 1479 (1999) (citing NIMMER ON COPYRIGHT § 10.10(F), at 10–98). Technically, the cases hold that the license is for the term of the copyright (or patent), but this is in effect a perpetual license since once the copyright or patent expires there is no longer a need for the license.

279. There does not appear to be a reason to distinguish computer programs from modern music or video products.

280. CONTU FINAL REPORT, *supra* note 185, at 13.

281. See, e.g., RCA Victrola ad, *National Geographic Magazine* (National Geographic Society) Vol. LXXV No. Two, Feb. 1939 at 275: “The World’s Greatest Artists are Yours for Keeps on Victor Records. They’ll thrill you with the music you love whenever you desire.”

282. Alex Ross, *The Record Effect: How Technology has Transformed the Sound of Music*, *THE NEW YORKER*, June 6, 2005, at 94.

Ninety-nine years ago, John Philip Sousa predicted that recordings would lead to the demise of music. The phonograph, he warned . . . [would] put professional musicians out of work. “The time is coming when no one will be ready to submit himself to the ennobling discipline of learning music,” he wrote. “Everyone will have their ready made or ready pirated music in their cupboards.”

Id.

283. For a detailed discussion of the rights of an owner to repair a patented product, see Max Stul Oppenheimer, *Yours for Keeps: MGM v. Grokster*, 23 J. MARSHALL J.

possibility for a potentially troublesome business model built around periodically planned obsolescence of certain formats in order to create new demand, and the incentive to do so is great.²⁸⁴

While these approaches are attractive ways of protecting certain innovators and consumers, they only apply in limited situations and they rely on interpretation of the current statutes and therefore could be defeated by Congress. A broad, constitutionally based solution is preferable. The courts have intervened on this basis in the past. The Supreme Court solved the problem of patents being issued on trivial technological advances in 1850,²⁸⁵ long before Congress enacted a statute to deal with the issue in 1952.²⁸⁶ The Supreme Court recognized the right of fair use long before Congress codified it in 17 U.S.C. § 107, and the Court applied the right in order to protect non-commercial time-shifting.²⁸⁷ These prior judicial decisions were made in the light of the technology of the time. Now that a fuller picture of the comprehensive impact of technological development and related obsolescence has emerged, it is time for an equally comprehensive right of technology-shifting.

COMPUTER & INFO. L. 209 (2005).

284. The cost of the new sales would be low; the work has already been created and all that needs to be done is convert the format. The model is similar to Disney's "vault" model. See, e.g., Thomas K. Arnold, *'Bambi' is Back—for 70 'II' Days*, USA Today.com (Feb. 6, 2006), http://www.usatoday.com/life/movies/news/2006-02-06-bambi_x.htm (noting that at the time thirty films were scheduled for re-release moratorium and that the strategy allowed maintaining prices—"if you keep it on the shelves, the only option you have is to keep repricing it, lower and lower."); Robert La Franco, *Eisner's Bumpy Ride*, FORBES, July 5, 1999, at 50.

285. *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248 (1850).

286. 35 U.S.C. § 103 (2006).

287. *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 442 (1984) ("[E]ven the unauthorized home time-shifting of respondents' programs is legitimate fair use.").