Marquette Intellectual Property Law Review

Volume 17 | Issue 1 Article 1

Reverse Engineering IP

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REVERSE ENGINEERING IP

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INTRODUCTION

"Plagiarism is necessary, progress implies it."[1]

Michalis Pichler

With the advent of the Internet and digital technology, the twenty-first century has ushered in a quantum increase in the ways to create, disseminate, and commercially exploit creativity. Digital technology allows anyone to create perfect digital copies of protected works in the comfort of their homes and to distribute them to tens, hundreds, thousands, and even millions of people with the click of a hyperlink via a handheld device. Indeed, copyright touches more ordinary people in substantial ways in this age of information than at any other time in American copyright history.[2]

The copy-and-paste reality and firmly entrenched user expectations to access, reuse, remix, and share creative output instantly via e-mail, blogs, and social networks are far afield from what Congress originally contemplated when it responded to its constitutional call and enacted the first version of the Copyright Act to solve the public goods problem inherent in inexhaustible goods like intellectual property.[3]

Art forms that rely primarily on appropriation are also often at odds with the current copyright framework. For example, hip-hop music pioneer Public Enemy[4] (P.E.) incorporated hundreds of recognizable and

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1. Michalis Pilcher, *Statements on Appropriation*, UBUWEB (2009), http://www.ubu.com/papers/pichler_appropriation.html (last visited Aug. 12, 2012). Pilcher's Statements on Appropriation is an "appropriation" style writing created out of six one sentence statements originated by the "artist/author." The statements were mixed, in a container, with eighteen one sentence quotes taken from various other sources and then printed onto a separate piece of paper. Thereafter, eighteen statements were blindly and randomly selected, listed in the order of their selection and presented as one document as the "statements on appropriation", for the presentation at Stichting Perdu, Amsterdam. *Id*.

2. *See* Pamela Samuelson et al., *The Copyright Principles Project*, 25 BERKELEY TECH. L.J. 1176, 1177 (2010) ("Copyright rules implicate many daily activities of ordinary people. Copyright has thus suddenly become significant not only to industry insiders who are steeped in this law's complexities, but also to the millions of people who access information on the Internet and who often share this information with others.").

3. Copyright Act of 1790, ch. 15, 1, 1 Stat. 124, 124 (repealed 1831). The 1790 Act protected books, maps, and charts and provided for an initial term of 14 years with privilege of renewal for a term of 14 years.

4. In the 1980s, "Public Enemy emerged and distinguished itself as a 'sampling-as-art trailblazer' by incorporating hundreds of samples into their legendary 1988 album, *It Takes a Nation of Millions to Hold Us Back*. In an ingenious fashion, the group combined the samples in a unique way to create a 'new, radical sound that changed the way music was created and experienced.'" Tonya M. Evans, *Sampling, Looping and Mashing OH MY! How Hip Hop is Scratching More Than the Surface of Copyright Law*, 21 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 843, 860 (2011) (citations omitted).

unrecognizable aural fragments into each of their songs before courts began to sanction aggressively the practice of music sampling.[5] Their status as a trailblazer in the practice of digital sampling was mostly a result of P.E.'s "collage" style of music creation.[6] P.E. incorporated bits and bytes[7] of pre-existing material to create new musical tracks over which they rapped about political and social issues of race, racism, economics, violence, police brutality, and religion.[8] However, their musical collage style of using samples as the building blocks of their music production was "outlawed" as an infringement.[9] That determination forever changed the production of hip-hop music or any music that incorporated direct samples of copyrighted works, even if those copies and adaptations were used for some arguably transformative purpose.[10]

For appropriation art of all types to survive an infringement inquiry, the resulting work must be creative, original, and transformative. However, the line between uses deemed infringing or fair is far from bright, at least in ex-ante determinations by second-generation creators who rely on copyright limitations in the creative process. Accordingly, this Article examines the role that "reverse engineering" and other policies and doctrines have played in the inventive context to protect the "space" such second-generation innovators require to build upon and around existing inventions that justify the patent monopoly. Further, this Article explores how patent policy better protects and encourages that space than does copyright, theoretically and in practice.

This Article asserts that copyright reform initiatives should "sample" (that is, borrow from) patent policies that protect access for further innovation to "remix" (that is, inform and reform) copyright law for the

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5. *See id*. at 862.

6. *See id*.

7. A byte is "a unit of computer information or data-storage capacity that consists of a group of eight bits and that is used especially to represent an alphanumeric character." MERRIAM-WEBSTER DICTIONARY, *available at* http://www.merriam-webster.com/dictionary/byte.

8. *See* Evans, *supra* note 4, at 862.

9. *See* Grand Upright Music, Ltd v. Warner Bros. Records Inc., 780 F. Supp. 182 (S.D.N.Y. 1991). *Grand Upright* is the landmark case involving rapper Biz Markie who sampled a portion of the music from Gilbert O'Sullivan's song "Alone Again (Naturally)" for use in his single "Alone Again." *See also* Bridgeport Music, Inc. v. Dimension Films, 410 F.3d 792 (6th Cir. 2005) (finding direct copying of a sound recording to be a per se infringement). *Cf.* Saregama India Ltd. v. Mosley, 687 F. Supp. 2d 1325 (S.D. Fla. 2009).

10. *Infra* Part II. C. 3. *See* Chris Richards, *The Court Case That Changed Hip-Hop*, WASH. POST (July 6, 2012), http://www.washingtonpost.com/opinions/the-court-case-that-changed-hip-hop--from-public-enemy-to-kanye--forever/2012/07/06/gJQAVWr0RW_story.html (last visited Aug. 12, 2012).

same end in the creative context. Throughout the Article, I use appropriation art to illustrate how an established cumulative medium of artistic creation is negatively impacted by overly restrictive copyright laws and may benefit from patent policies seemingly better suited to encourage and support such creative innovation.

Copyright has already borrowed from its constitutional cousin in creating a misuse doctrine, for example.[11] I assert other patent policies and practices are ripe for the borrowing. Patent policy, despite its own problems to be sure, still presents a more robust, well-defined, and generally more efficient system of incentives to create.[12] This approach both empowers creators to access and make use of existing works for certain purposes and at the same time still protects rights holders in a way that honors the constitutional directive to secure certain exclusive rights. Such an approach is particularly vital for traditionally collaborative and cumulative creative mediums that produce musical, dramatic, and audiovisual works. Accordingly, patent policy should be "sampled" to "remix" copyright.

Part I explores the problems of applying a twentieth century legal framework to twenty-first century "creative innovation," as I describe it, and the benefits of second-generation creative output. In this Part, I put a finer point on the general observations noted throughout this Article by way of the "appropriation art" example. I highlight the different outcomes an appropriation artist might experience when her creative effort is protected under "patentesque" policies that better protect use of existing works for the purpose of further creation in contrast to the results under the current copyright framework.

Part II of this Article explores copyright and patent laws as distinct legal regimes. This Part addresses the historical underpinnings of intellectual property protection generally and how both regimes developed as mostly distinct entities until software emerged. In the case of copyright, I also address the impact of Congressional overprotection coupled with the additional private fences erected by rights holders via technological and contractual measures to further extend the reach of their exclusive rights beyond what copyright actually protects.[13]

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11. For a discussion of copyright misuse and its origins in the patent misuse doctrine, *see infra* Part II.

12. *See generally* John Shepard Wiley Jr., *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119, 120 (1991) (arguing that copyright could well learn from patent about "sensible and efficient incentives" because such a focus would give copyright the coherence it now lacks).

13. *See generally* Nate Andersen, *Can I Resell My MP3s?: The post-sale life of digital goods*, ARS TECHNICA (DEC. 18, 2008, 12:05 AM), http://arstechnica.com/tech-policy/news/2008/12/post-sale-life.ars (last visited Mar. 17, 2012); *Redigi Says They'll Sell*

Part III provides a brief history of the role of reverse-engineering in the inventive context under trade secret law and as applied to digital goods under patent, copyright, and a hybrid regime, the Semiconductor Chip Protection Act. Further, I examine briefly how reverse engineering is used in the video game industry and digital music production to support further innovation and to apply my theoretical assertions not just to literary and artistic productions, but to the process of creation itself. Finally, this Part highlights the role of misuse in both the copyright and patent contexts as an alternative approach courts have used to limit both monopolies with, admittedly, varying degrees of success.[14] I argue that strong recognition by federal judges of the copyright misuse doctrine, would better protect cumulative creation in genres like appropriation art. Such genres benefit greatly from, and have traditionally relied on, cumulative creation in ways that generally cause little, if any, market harms to the rights holder.

Finally, Part IV explores the blurring of the distinction between copyright and patent protection in the digital age. This Part challenges historic notions of the bright-lined semantic demarcation between the terms "innovation" (traditionally attributed to patent law) and "creativity" (traditionally linked to copyright law).[15] Because computer programs are afforded both copyright and patent protection, for example, Congress and the Supreme Court have and continue to blur the distinction traditionally made in the subject matter of both regimes.[16]

Your Used MP3s Legally, HYPEBOT.COM, http://www.hypebot.com/hypebot/2011/02/redigi-says-theyll-sell-your-used-mp3s-legally-.html (last visited Mar. 17, 2012); *infra* Part IV.

14. *See generally* Vincent Chiappetta, *Living with Patents: Insights from Patent Misuse*, 15 MARQ. INTELL. PROP. L. REV. 1 (2011) (exploring patent law's difficulty in distinguishing between inherent and excessive/misuse costs to determine when patent misuse is supported, when the doctrine should apply, and whether it should exist at all).

15. *But see* Doris Estelle Long, *When Worlds Collide: The Uneasy Convergence of Creativity and Innovation*, Symposium: Information Convergence: At the Boundaries of Access, 25 J. MARSHALL J. COMPUTER & INFO. L. 653, 656 (2007–08) (expressing concern that the lack of a clear definitional distinction between innovation and creativity wreaks havoc on intellectual property systems that should remain separate and distinct). Professor Long explains that copyright and patent law regimes were created to address distinct legal issues and promote distinct goals. She also notes, however, the point asserted by this Author, that both regimes share a common bond. The root of both monopolies is ultimately to increase output and therefore benefit society by making life better, easier, more productive, efficient, thoughtful, connected and enjoyable.

16. In 1980, Congress adopted the recommendation of the National Committee on New Technologies Uses (CONTU) to make clear that copyright law protected software programs. One year later, the Supreme Court ruled that implementation of a mathematical formula in a computer software program qualified for patent protection. *See* Philip J. Weiser, *The Internet, Innovation, and Intellectual Property Policy*, 103 COLUM. L. REV. 534, 552 (2003) (citations omitted).

Given the current legislative, judicial, and technological cross-pollination of innovation and creativity in crafting, adjudicating, and applying copyright law, this twenty-first century trend – indeed, this reality – should be embraced rather than resisted.

PART I: SAMPLING PATENT TO REMIX COPYRIGHT: THEORY IN PRACTICE

American economist Theodore Levitt[17] is widely credited for saying that "[c]reativity is thinking up new things. Innovation is doing new things."[18] This quotation captures the traditional delineation between copyright and patent protection. I assert, however, that the twenty-first century ways of "thinking and doing" have led to creative innovation and innovative creativity in the face of intellectual property regimes that struggle to hold on to outmoded ways to protect those productions and products. This reality highlights the problems of applying an outdated, limited legal framework to current technological means of inspiring and fixing creative endeavors. At a minimum, current copyright protection fails to appreciate the benefits of second-generation creative output by creators who are first users of existing copyrighted works.[19] Case in point is the appropriation art form. It is clearly established within art history and culture, but is also often at odds with copyright when an appropriation artist copies and/or adapts an existing copyrighted work to create a new work of art. Although "appropriation art" generally describes the post-modern art practice, I assert the term contemplates any art form that relies primarily on the use of "quotation" or "citation" of what already exists (whether protected by copyright or otherwise) to incorporate it into a new creative work. This includes literary works, video, music, and, of course, visual art.[20]

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17. Ted Levitt is described as "a monumental and iconoclastic figure in the field of marketing and former editor of Harvard Business Review, who influenced generations of both scholars and practitioners with his groundbreaking, always provocative, and often controversial books and articles." HARV. UNIV. GAZETTE, *Professor Theodore Levitt, legendary marketing scholar and former Harvard Business Review editor, dead at 81* (July 20, 2006), http://www.news.harvard.edu/gazette/2006/07.20/99-levitt.html.

18. Mark McGuiness, *The Crucial Difference Between Creativity and Innovation*, LATERAL ACTION (Apr. 20, 2009), http://lateralaction.com/articles/creativity-innovation/ (last visited Oct. 7, 2012).

19. *See generally* JULIE E. COHEN, CONFIGURING THE NETWORKED SELF 5 (1st ed. 2012). In this comprehensive look at twenty-first century users and creators of copyright, Professor Cohen rightly acknowledges the failure of copyright law to fully appreciate and consider the place of the "user" in these times and declares the failure to be a "critical omission" that she adeptly addresses in the text. *Id*. [Ch. 3, p. 5 of electronic version *available at* http://www.juliecohen.com/page9.php (last visited July 30, 2012).].

20. In the case of literary works, the role of quotation is a classic form of appropriation in scholarly writing. *See* Landes, *Copyright, Borrowed Images, and Appropriation Art*, *infra* note

For example, Jeff Koons, one of the most well-known living appropriation artists, has defended his fair share of infringement claims (and with mixed results). In 2006, Koons successfully defended his use of a copyrighted photograph from a fashion magazine in his collage painting as a fair use.[21] The court in that case recognized the "ultimate" test of fair use as "whether the copyright law's goal of promoting the progress of science and useful arts would be better served by allowing the use than by preventing it."[22] It held that Koons's use did in fact promote progress as satirical comment on society's hyper-consumerism, that he used a reasonable amount of the original work for that purpose, and that his use was "transformative."[23]

However, Koons was unsuccessful in several prior infringement cases that arose from an art exhibition entitled, "The Banality Show" (Banality). Banality included a series of Koons's sculptures, which incorporated reproductions of images taken from copyrighted commercial postcards and syndicated comic strips.[24] In the Banality infringement cases, Koons argued that despite his own private commercial gain, the primary purpose of his unauthorized use was social comment (generally expressed as either parody or satire).[25] Comment is a specifically enumerated fair use purpose and character of use under section 107.[26] Additionally, both satire and parody are valued forms of criticism, although they are analyzed differently in copyright infringement cases.[27] A parody of the original work (that is, some comment or criticism of the original itself)[28] allows the artist to appropriate more of the original than would satire, which is a comment on society or some societal ill.[29]

46, at 20. This Article, of course, serves as case-in-point.

21. Blanch v. Koons, 467 F.3d 244 (2d Cir. 2006).

22. *Id.* at 251 (citing Castle Rock Entm't, Inc. v. Carol Pub. Grp., Inc., 150 F.3d 132, 141 (2d Cir. 1998)).

23. *Id.*

24. *See Blanch*, 467 F.3d at 246 (citing Rogers v. Koons, 960 F.2d 301 (2d Cir. 1992), *cert. denied,* 506 U.S. 934, 113 S. Ct. 365, 121 L. Ed. 2d 278 (1992); Campbell v. Koons, No. 91 Civ. 6055, 1993 WL 97381, 1993 U.S. Dist. LEXIS 3957 (S.D.N.Y. Apr. 1, 1993); United Feature Syndicate v. Koons, 817 F. Supp. 370 (S.D.N.Y. 1993)).

25. Although parody and satire are both forms of comments and criticism they are treated quite differently in the copyright context.

26. *Rogers v. Koons,* 960 F.2d at 309.

27. *Id*. at 310 (citing Warner Bros. Inc. v. Am. Broad. Cos., Inc., 720 F.2d 231, 242 (2d Cir.1983) (noting that parody and satire are encouraged because, through comment and critique, they both "foster the creativity protected by the copyright law").

28. A good example is Alice Randall's literary work "The Wind Done Gone", a parody of Margaret Mitchell's "Gone with the Wind." *See* Suntrust Bank v. Houghton Mifflin Co., 268 F.3d 1257 (11th Cir. 2001).

29. *See Koons*, 960 F.2d at 310.

But because Koons argued his use was parodic, the court had to focus on parody and analyze whether Koons's "String of Puppies" was properly considered a parodic comment on or a criticism of the Rogers photograph "Puppies." The court held it was not. Accordingly, the substantial similarity of the two works without sufficient legal justification led to a finding of infringement.[30]

Appropriation art is based, as the name suggests, on incorporating existing materials into a new resulting work.[31] Appropriation artists often use recognizable elements from society and from other artists as a form of comment or criticism. The practice embraces "the maxim touted by modernist artists who question the nature or meaning of art" by intentionally blurring and indeed crossing the lines of "originality, creation, and authenticity."[32] Many consider Marcel Duchamp the Conceptual Godfather of appropriation art.[33] His "readymade" works re-contextualized everyday items found in the home and in everyday life. The most notable of these was his infamous work titled *Fountain*, an actual urinal signed with the pseudonym "R. Mutt" and submitted to (and rejected by) the Society of Independent Artists exhibition. Interestingly, *Fountain* was selected in 2004 by five hundred art experts in the United Kingdom as the most influential work of modern art ahead of works by Picasso and Matisse.[34]

Examples of appropriation art in the visual context include a collage that incorporates any of the following into a new work: 1) a public domain work or other unprotected preexisting material; 2) a copyrighted work; or 3) both unprotected and copyrighted works.[35] The resulting work can be one unique work or mass-produced into multiple copies. Appropriation art that borrows from copyrighted works risks infringing upon the original if any of the section 106 rights is involved.[36] So the

30. *Id*. at 306 (upholding the district court finding of infringement).

31. *See* Eric D. Gorman, *Appropriate Testing and Resolution: How to Determine Whether Appropriation Art is Transformative "Fair Use" or Merely an Unauthorized Derivative?*, 43 ST. MARY'S L.J. 289, 291 (2012). "The term 'appropriation art' essentially involves the taking of an image garnered from a real object or even an existing work of art and using the borrowed elements to form a new piece of art." *Id*. (citations omitted).

32. *See id*. at 292.

33. *See Appropriations*, REMIXTHEBOOK, http://www.remixthebook.com/the-course/appropriation (last visited Aug. 6, 2012). DuChamp (1887–1968) was a very influential twentieth century French-born artist whose work is most often associated with the Dadaist and Surrealist movements.

34. *See Duchamp's Urinal Tops Art Survey*, BBC NEWS (DEC. 1, 2004, 5:56 PM), http://news.bbc.co.uk/2/hi/entertainment/4059997.stm (last visited Aug. 6, 2012).

35. *See* Landes, *infra* note 46, at 12–16.

36. *But see* Lee v. A.R.T. Co., 125 F.3d 580 (7th Cir. 1997) (involving original copyrighted works were, after a lawful first sale, mounted on tiles and sold). Mounting the original was held

question is, whether appropriation art is in essence an infringement or a productive use deemed fair, *de minimis*, or altogether new.[37] The answer is a lawyerly one: it depends.[38]

Jeff Koons (as noted above) and the late Andy Warhol remain iconic in their prominent positions as appropriation artists in the world of contemporary art and culture.[39] Some modern-day appropriation artists include photographers Sherrie Levine (known for taking photographs of existing photographs); Cindy Sherman (who works on both sides of the camera and incorporates doll parts or prosthetic body parts arranged in scenes with intentionally vile substances in her photographs);[40] Damien Hirst (a widely acclaimed English artist noted for use of preserved animals in display cases to comment on death and the fragility of life);[41] and painter Deborah Kass (who uses Andy Warhol as inspiration to comment in her work on the intersection of pop culture, art history, and the self).[42]

The impact on art and culture of these artists, as well as the demand, acclaim, and disdain for their work, suggests appropriation art has been and remains an important and vital art form, and certainly of the type that promotes cultural progress. The tradition continues through the work of digital appropriation artists like Cory Arcangel, who appropriates imagery from computer games, video, music, sculpture, print, and other mediums into new works to explore the connection between technology and culture.[43] Arcangel's work is in the permanent collections of the Museum of Modern Art, the Smithsonian, and the Tate.[44]

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to be a non-infringing use of a lawful copy.

37. In addition, an appropriation artist can also run afoul of the Digital Millennium Copyright Act if she seeks to work around encryption fences to access the underlying elements.

38. *See* Gorman, *supra* note 31, at 294 (noting that the fair use defense can help counter infringement allegations).

39. For biographical information about Jeff Koons *see* WIKIPEDIA, http://en.wikipedia.org/wiki/Jeff_Koons (last visited Aug. 6, 2012). For biographical information about Andy Warhol *see* WARHOLFOUNDATION, http://www.warholfoundation.org/legacy/biography.html (last visited Aug. 6, 2012).

40. *See* CINDYSHERMAN.COM, http://www.cindysherman.com/biography.shtml (last visited Aug. 6, 2012).

41. *See* DAMIENHIRST.COM, http://www.damienhirst.com/biography/read-more-about-the-artist (last visited Aug. 6, 2012).

42. *See* WIKIPEDIA, http://en.wikipedia.org/wiki/Deborah_Kass (last visited Aug. 6, 2012).

43. *See Cory Arcangel: Pro Tools*, WHITNEY.ORG, http://whitney.org/Exhibitions/CoryArcangel/ (last visited Aug. 6, 2012).

44. *See* Andrea K. Scott, *Futurism*, THE NEW YORKER (May 30, 2011), http://www.newyorker.com/reporting/2011/05/30/110530fa_fact_scott#ixzz22pr0wWQM (last visited Aug. 6, 2012).

The greatest repository of appropriation art, however, is not in the hallowed halls of the world's most famous art galleries and museums; it is on YouTube.[45] YouTube and similar sites are the fertile digital ground into which millions of unknown appropriation artists (who sometimes actually become well-known if their video "goes viral") plant their mixed-down and mashed-up creations for all of the the world (or at least their "world" of friends and family) to watch and share.

Traditionally, appropriation art refers to visual works that borrow images and objects from popular culture and mass media, as well as from other copyrighted works.[46] This latter point is what often leads appropriation art to be at odds with copyright law and scrutinized for infringement.[47] Because successful appropriation artists change the context of the appropriated materials into something new that is creative beyond what already exists, the argument is that appropriation is sufficiently transformative to be deemed something entirely new rather than a mere market-substitution or unauthorized derivative.[48] More than merely engaging in private consumption of protected works, appropriation artists are authors themselves. They are what Professor Julie E. Cohen refers to as a "romantic user."[49] Professor Cohen posits that the "romantic user" (a play on the notion of the Romantic author as discussed herein) is a "dedicated and perceptive cultural critic" who transforms existing works into new creative productions as a means of expression and therefore engages in the types of productive and preferred uses most aligned with the policy of cultural progress.

In contrast to the result under the current copyright regime, an appropriation artist could enjoy a different outcome that a second-comer might experience in the digital realm when her creative effort is protected under a framework that incorporates "patentesque" policies with copyright law. Such a hybrid framework–perhaps akin to the Semiconductor Chip Protection Act (SCPA)–would privilege access to a greater range of protected works for the purpose of encouraging production of new creative works through collaborative and cumulative art forms like appropriation art.

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45. *See* James Plotkin, *Copyright Law and Appropriation Art: Part I*, BLOGSPOT.COM (May 14, 2001), http://jamesplotkin.blogspot.com/2011/05/copyright-law-and-apropriation-art-part.html.

46. *See* William M. Landes, *Copyright, Borrowed Images, and Appropriation Art: An Economic Approach*, 9 GEO. MASON L. REV. 1, 1 (2000) (examining from the standpoint of economics the relationship between copyright law, borrowed images and appropriation art).

47. *See id*.

48. *Id.*

49. *See* Cohen, *supra* note 19.

If a fundamental goal of the copyright monopoly is to promote economic efficiency as a means to encourage the creation and dissemination of cultural productions, traditional appropriation art seems aligned with that goal. Copyright—at least before the DMCA's access limitations—already provides adequate and economically efficient means to resolve conflicts and balance interests.[50] But appropriation art forms in the digital context, however, do not always seem to fare as well, especially in light of the DMCA, which is referred to by some commentators as "paracopyright."[51] For example, when a copyright owner conditions access to non-copyright protected aspects of an otherwise protected work or prohibits fair uses as a condition for access, such may be deemed an abuse of not only the copyright, but the ancillary prohibitions of decryption. Therefore, non-protectable elements may be encrypted, and cracking the encryption code to gain access and engage in otherwise permissible copying and adaptation is unlawful under the DMCA, unless some legal space for such activities is protected. I argue permitting reverse engineering in some form or fashion can preserve this space.[52]

Accordingly, appropriation art forms would clearly benefit from a legal framework more permissive of such innovative artistic uses or at least a strong judicial recognition of the misuse doctrine to protect the culturally productive uses likely deemed fair or *de minimis*.

PART II: THE INTELLECTUAL PROPERTY MONOPOLIES[53]

Twentieth century technological advancements, like the piano roll, radio, television, cable and satellite, the VCR, and peer-to-peer networks,[54] may well have tested the outer bounds of copyright law and

50. *See* Landes, *supra* note 46, at 2–3.

51. *See generally* Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095 (2002) (arguing that DMCA "paracopyright" provisions are easily abused and therefore a strong recognition by courts of anti-circumvention misuse is needed to curtail such abuses sufficiently); Michael J. Remington, *The Ever-whirling Cycle of Change: Copyright and Cyberspace* 3 N.C. J.L. & TECH. 213, 238–41 (2001–02) (citing David Nimmer, Puzzles of the Digital Millennium Copyright Act, 46 J. COPYRIGHT SOC'Y U.S.A. 401, 405 (1999)).

52. *See* Dan L. Burk, *supra* note 51, at 1132.

53. The term intellectual property primarily encompasses copyright, patent, trademark, trade secret and right of publicity. The term was coined by Kohler and Picard because they believed copyright, patent, and trademark in particular shared certain commonalities not shared with tangible property. *See* J.H. Reichman, *Charting the Collapse of the Patent-Copyright Dichotomy: Premises for a Restructured International Intellectual Property System*, 13 CARDOZO ARTS & ENT. L.J. 475, 507–08 (1994–95).

54. Interestingly, the Internet as originally conceived in the late 1960s, a/k/a ARPANET, was a peer-to-peer system operated and maintained by the United States government. *See generally* Nelson Minar and Marc Hedlund, *Peer-to-Peer: Harnessing the Power of Disruptive*

struck fear in the hearts (and wallets) of corporate rights holders that such technologies would decimate the information, software, and entertainment industries they involved. But no technological advances have challenged copyright law to such an extent and invoked such concern among IP-intensive product rights holders than digital technology and the Internet in their current forms.

What began as a computer networking concept involving packet switching in the 1960s[55] and grew to DOS-driven green screens, message boards, and chat rooms has morphed into a significant force that has forever altered the way we communicate, work, play, shop, learn, consume, collaborate, and connect regardless of our geographic location.[56] Without question, digital technology has changed *how* and *what* we produce. It has also changed the ways and reasons inventive and creative goods—especially creative digital goods—are protected legally via the primary traditional intellectual property regimes of patent and copyright. And until relatively recently in the history of IP, those regimes were clearly and intentionally segregated.[57]

A. Tale of Two Regimes

Copyright and patent had very different histories prior to ratification of the United States Constitution and the first enactments of the United States Copyright and Patent Acts in 1790.[58] The copyright and patent monopolies were both born of the U.S. Constitution and granted to authors and inventors certain exclusive rights for limited times.[59] These monopolies were created and included in the Constitution in a time of great caution and skepticism of monopolistic activities in the public

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Technologies, O'REILLY.COM (Mar. 2001), *available at* http://oreilly.com/catalog/peertopeer/chapter/ch01.html.

55. *See* INTERNET SOC'Y, *A Brief History of the Internet*, http://www.isoc.org/internet/history/brief.shtml (last visited Mar. 28, 2012).

56. *Id*. (noting: "[t]he Internet is at once a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard for geographic location.").

57. *See infra* Part IV.

58. *See* Gregory N. Mandel, *Left-Brain Versus Right-Brain: Competing Conceptions of Creativity in Intellectual Property Law*, 44 U.C. DAVIS L. REV. 283, 288 (2010) (noting that "the explanatory model of how intellectual property developed . . . relies on these histories as significantly determinative."). After achieving independence in the days of the confederacy and in the days prior to adoption of the U.S. Constitution, most of states maintained their own patent laws. South Carolina, however, was the only state to expressly grant to inventors an exclusive privilege of using their new machines for a defined period (14 years). *See generally A Brief History of the Patent Law of the United States*, LADAS & PARRY LLP, http://www.ladas.com/Patents/USPatentHistory.html (last visited Mar. 19, 2012).

59. U.S. CONST. art. I, § 8, cl. 8.

sphere.[60] They were designed and maintained for centuries as distinct legal regimes with different subject matter.[61] The dividing line between the two remained bright until the technological advance of software and digital technology led to, albeit, controversial protection under both regimes.[62]

Both were legislatively prescribed antidotes intended to cure the public-goods problem that plagued intangible and inexhaustible products in a way not usually suffered in the tangible goods market.[63] Unlike tangible goods that enjoyed comparative success among standardized goods because of some combination of quality, customer service, and price,[64] the value of intellectual property came from novelty or originality.[65] The concern was that such products would, absent legal protection, be co-opted by those free-riders who had not invested in the economic and non-economic costs of initial production.[66]

Each monopoly rested on distinguishable policy goals to incentivize different classes of resulting works. Copyright focused on original artistic productions and patent was concerned with novel, nonobvious, and useful inventive products. The laws, both domestically and

60. *See* Reichman, *supra* note 53, at 486.

61. *See generally*, John Shepard Wiley, Jr. *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119, 119 (1991) (explaining that the two are separate doctrines and have distinct procedures because of the different resulting works that each protects).

62. *See generally* Julie E. Cohen and Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CAL. L. REV. 1, 3 (2001). (noting that despite the great deal of attention paid in academic literature to the question of whether software should be patentable subject-matter, that question is for the "history books" as a foregone conclusion); Lateef Mtima, *So Dark the CON(TU) of Man: The Quest for a Software Derivative Work Right in Section 117*, 69 U. PITT. L. REV. 23 (2007–08) (noting that "[u]nlike the artistic works traditionally protected by the copyright law, such as novels and songs, software programs are primarily utilitarian in nature, meaning that the salient purpose of a software program is to undertake a task as opposed to expressing aesthetic ideas [and that therefore] the social policy goals of the copyright law-the stimulation of aesthetic interpretation, expression, and cultural advancement and enlightenment-are not immediately compatible with the utilitarian nature of and concomitant benefits presented by computer software programs.").

63. David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 191–92; 196–97 (2009) (explaining how the patent regime solves the public goods problem by granting patentees monopoly rights, currently for 20 years).

64. The saying in business: "Price, quality, service. Choose two." has become all but axiomatic in marketing circles.

65. *See* Reichman, *supra* note 53, at 476.

66. *See* Landes, *supra* note 46, at 5. Note, however, that in the case of unique goods (like a painting, for example), the argument for protection may be weaker given that the value in the original copy comes from the sale of the work itself rather than from the sale of reproductions. *Id*.

internationally, were historically distinguishable as well.[67] Section 102(b) of the Copyright Act, for example, served the dual purpose of identifying both protectable and non-protectable subject-matter and channeling and separating creative (copyrightable) from innovative (patentable) endeavors.[68] The reason these two regimes were tracked separately is because patent and copyright offered distinct types of protection and for different reasons. Therefore, without clear boundaries, savvy entrepreneurs would circumvent the more arduous patent system and secure patent-like protection via the less rigorous copyright system.[69] However, and as discussed in Part IV more fully, this concern seems already to have come to pass. In fact, the art versus utility distinction has collapsed in on itself to the point of becoming discredited.[70]

The patent and copyright monopolies were created as exceptions to an otherwise liberal economic system that values fair competition without government interference.[71] Under patent law, there is an underlying rush to market for useful, efficient products that improve our lives, which is supported by fair competition. In contrast, there is generally no corresponding urgency to get copyrighted productions to market, at least not purely artistic ones like paintings or sculptures. This latter point is evidenced to some degree by the fact that rather than assessing value of creative productions before protection is granted, copyright law protects equally all creative works automatically once fixed in a tangible medium of expression. Valuation, therefore, is left to the market to determine the short and long term economic and artistic value of a work.[72] Accordingly, the copyright and patent monopolies developed as separate and distinct regimes. They protected different productions and were supported and guided by distinguishable policies and goals.

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67. *See* J.H. Reichman, *supra* note 53, at 477–79 (1995) (comparing and contrasting the "bipolar framework" of international intellectual property law pursuant to the Paris and Berne Conventions a.k.a. the "Great Conventions" with the "universal minimum standards" that sought to harmonize to a certain extent the distinct IP regimes in light of TRIPS).

68. For example, section 102(b) excludes procedures, processes, systems, methods of operation and discoveries regardless of form or embodiment from copyrightable subject matter. All of those listed are considered patentable subject matter, however. *See* H.R. REP No. 94–1476, 94th Cong., 2d Sess. 57 (1976) (legislative history of 102(b)). *See also* Pamela Samuelson, *Why Copyright Excludes Systems and Processes from the Scope of Its Protection*, 85 TEX. L. REV. 1921, 1926 (2007).

69. *See* Reichman, *supra* note 53, at 482.

70. *See id*. (citing Mazer v. Stein, 347 U.S. 201 (1954)).

71. *See id*. at 485 (noting that both regimes rest on an underlying assumption, actual or theoretical, that economic incentives are necessary to spur competition and encourage innovation novel products and original productions).

72. *See id*. at 493.

The divergent paths, however, converged in irreversible and important ways due to digital technology.

B. Patent

1. Policy Considerations and the Law

Patent law is a complex system of rights, benefits, and costs organized to encourage innovation and competition.[73] Patent law achieves this, in theory, by providing a number of incentives. The exact number and relative importance is a subject of on-going debate. Scholars generally agree, however, on the incentives to invent, to disclose, to build upon and improve, and to exploit commercially.[74] The goal of improvement is of particular import in the patent law context.

Under the current version of the Patent Act,[75] a patent applicant may obtain a patent if her invention is a useful, novel, and non-obvious process, machine, manufacture, or composition of matter.[76] The right conferred by the patent grant is, in the language of the statute and of the grant itself, "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States or "importing" the invention into the United States.[77] Accordingly, the patent monopoly confers a negative right—the right to exclude.

The Patent Clause balances the need to encourage innovation with the need to avoid monopolies, which stifle competition without any corresponding advancement in the "Progress of Science and useful Arts."[78] Thus, from its inception, patent law "embodied a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy."[79]

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73. Lee Petherbridge, *On The Development of Patent Law*, 43 LOY. L.A. L. REV. 893, 898 (2010).

74. *See id*. at 899.

75. 35 U.S.C. § 101 *et seq.*

76. 35 U.S.C. § 101, § 102(a) and § 103. Patentable subject-matter was originally defined in the Patent Act of 1793 as "any new and useful art, machine, manufacture, or composition of matter . . . ." Diamond v. Chakrabarty, 447 U.S. 303, 308 (1980). The Framers conceived "useful art" to be mechanical inventions useful for farmers. *See* Burk, *supra* note 51, at 1159. "Art" was later replaced by "process" when patent law was codified in the Patent Act of 1952. Chakrabarty, 447 U.S. at 309. There are three types of patents: utility, design and plant. The term of a new patent is twenty years from the date on which the application for the patent was filed in the United States or, in special cases, from the date an earlier related application was filed.

77. 35 U.S.C. § 154(a)(1).

78. *See* Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 109 S. Ct. 971, 975 (1989).

79. *See id.*

The entire patent system is structured carefully to encourage the creation and disclosure of "new, useful and non-obvious advances in technology" by providing the exclusive right to exploit the invention for a certain time and to prevent others from doing the same during that time.[80] The patent regime takes seriously this "rights-for-disclosure" bargain with society.[81] The balance is maintained in the race run on two parallel tracks: the race to get improved products to market quickly and the urgency (indeed the requirement) to share existing know-how so second-generation inventors may innovate beyond what already exists. This example from patent, of the balance between protection and access by second-generation creators for further innovation, could be appropriated by copyright reformers to protect and, as the argument goes, incentivize creators. Such an approach would return (or leave intact in the first instance) sufficient material for second-generation creators to access, borrow, and re-contextualize material in a way that benefits society without causing undue market harm to the copyright owner.

Similarly, copyright has its own *quid pro quo* of rights via the idea-expression dichotomy. Unfortunately, even when ideally calibrated, copyright law struggles to ensure a copyright owner's right to their "original expression" while still continuing to encourage others to build freely upon the ideas and information conveyed by an underlying a work.[82]

C. Copyright

1. Policy Considerations and the Law

Copyright law protects literary and artistic intellectual productions not protectable as trade secrets that generally require no reverse engineering to exploit.[83] This vulnerability is a proffered justification for a longer term of exclusive protection.[84] Copyright protection, from an economic perspective, balances the costs to society of limiting access to a protected work with the purported incentives for the author to create the work in the first place.[85] Further, it presupposes that, absent an

80. *See id.* at 977.

81. *See* Cohen & Lemley, *supra* note 62, at 19.

82. *See* Evans, *supra* note 4, at 903; John Shepard Wiley, Jr., *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119, 123 (1991) (noting the "false dichotomy" of idea and expression).

83. *See* Reichman, *supra* note 53, at 493.

84. *See id.*

85. *See* William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEG. STUD. 325, 326 (1989), *available at*

economic incentive, fewer works would be created or at least fewer would be disseminated into the cultural repository.[86] This concern is reflected in the legislative history of the 1909 version of the Copyright Act:

> In enacting a copyright law Congress must consider . . . two questions: First, how much will the legislation stimulate the producer and so benefit the public; and second, how much will the monopoly granted be detrimental to the public. The granting of such exclusive rights, under the proper terms and conditions, confers a benefit upon the public that outweighs the evils of the temporary monopoly.[87]

The justification of a copyright monopoly rests on the presumption that initial production costs are often higher than reproduction costs of the same creative work.[88] Achieving the delicate and elusive balance between access and incentives is an ever-present concern of copyright law. This central struggle is made all the more complex by digital technologies that allow for inexpensive, perfect reproductions, and immediate capabilities to disseminate them widely—with or without permission.

Much debate exists over the true policy goals and primary objectives of the copyright monopoly.[89] However, it can all be summed up in one overarching purpose: to foster expressive and diverse creative production and to disseminate knowledge.[90] The latter purpose serves to underwrite democratic culture by supporting the free exchange of information and diversity of expression.[91]

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http://cyber.law.harvard.edu/IPCoop/89land1.html (last visited Aug. 13, 2012); *see also* Landes, *supra* note 46, at 4–5.

86. *See* Landes, *supra* note 46, at 5. Landes correctly notes, however, that "[t]o be sure, some original works will still be created even in the absence of copyright protection." I assert this point cannot be overstated in light of the normative behaviors of collaboration, cumulative creation and sharing via the Internet.

87. H.R. REP. NO. 2222, 60th Cong., 2d Sess. 7 (1909).

88. *See* Landes, *supra* note 46, at 5.

89. *See* Neil Weinstock Netanel, *Asserting Copyright's Democratic Principles in the Global Arena*, 51 VAND. L. REV. 217, 226 (1998).

90. *See id*.

91. *See id*. at 248. The author further asserts copyright informs democratic culture in three ways: 1) providing an incentive to produce and disseminate of original expression; 2) to support a sector of diverse of expressive activity that is independent of the government; and 3) highlighting the value of individual creativity. *Id*.

2. The Copyright Act

Copyright exists *automatically* when an original literary or artistic work is fixed for the first time in any tangible medium of expression in a copy or phonorecord.

In general, the Copyright Act gives a copyright owner the exclusive right, and authorizes others, to reproduce the work, to prepare derivative works based on the original, to distribute copies of the work to the public by sale or other transfer of ownership, or by rental, lease, or lending, to perform the work publicly, to display the work publicly, and in the case of sound recordings, to perform the work publicly by means of a digital audio transmission.[92]

But copyright is not absolute; the rights are limited in several important respects. The purpose of limiting doctrines is to balance economic incentives with access and other costs to society in order to promote economic efficiency.[93] First, copyright only protects tangible expression, not ideas.[94] Second, copyright protects against copying, but not independent creation.[95] Another important limitation is the fair use doctrine.[96] Therefore, a defendant in an infringement action can show, for example, that the resulting work was created independently, that he appropriated only non-copyrighted elements, or that the use was *de minimis*[97] or fair.[98]

3. Fair Use

"[W]e must recognize that what copyright leaves unregulated—the 'fair use economy'—is as economically significant as what it regulates."[99]

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92. *See* Evans, *supra* note 4, at 873 (citing 17 U.S.C. § 106(1)–(6) (2012)).

93. *See* Landes, *supra* note 46, at 7–8.

94. 17 U.S.C. § 102(b). *See* Landes, *supra* note 46, at 8 (recognizing that attempts to protect ideas via copyright would involve substantial administrative and enforcement costs without requisite benefits).

95. *See* Landes, *supra* note 46, at 8.

96. 17 U.S.C. § 107.

97. Ringgold v. Black Entm't Television, Inc., 126 F.3d 70 (2d Cir. 1997) (noting courts ask whether a non-trivial amount of the original work was used). *But see* Bridgeport Music v. Dimension Films, 410 F.3d 792, 800–01 (6th Cir. 2005) (holding that any sampling of another's copyrighted sound recording, no matter how *de minimis*, automatically constituted copyright infringement).

98. 17 U.S.C. § 107.

99. *See* Thomas Rogers & Andrew Szamosszegi, *Fair Use on the U.S. Economy*, COMPUTER & COMM. INDUSTRY ASS'N (2011) http://www.ccianet.org/CCIA/files/ccLibraryFiles/Filename/000000000526/CCIA-FairUseintheUSEconomy-2011.pdf (last visited Aug. 10, 2012).

Fair use finds its origins in *Folsom v. Marsh*.[100] Congress codified the fair use defense in the 1976 version of the Copyright Act and included a non-exclusive list of permitted uses.[101] The doctrine allows a third party to use a copyrighted work without the copyright owner's consent for certain purposes and under certain conditions. It is determined on a case-by-case basis.[102] The fair use doctrine was crafted to create, and to preserve, enough creative "space" for a second author to copy a prior author's work within the context of protecting an original author's copyright monopoly.[103] This legal "space" is obviously essential for appropriation artists to copy and adapt existing works to innovatively create beyond the original.

The Act provides examples of preferred "productive" uses that, even if unauthorized, are roughly consistent with economic efficiency because they allow for an "otherwise beneficial exchange" and therefore provide a "net social gain."[104] In the *quid pro quo* exchange of rights, owners agree impliedly to unauthorized but productive uses, notwithstanding any potential harm to the rights holder.[105] Productive uses, like those enumerated in section 107, are deemed in some cases to be "transformative," in contrast to merely reproductive uses that function instead as market replacements of the original.[106] The former is believed unlikely to serve as a market substitute or impact negatively any anticipated license revenue potential.[107]

Fair use is based on the assumption that "borrowing is not the norm" in the creative process. Therefore, unauthorized uses should be regulated and limited accordingly.[108] The doctrine has been described as a necessary incident of the constitutional directive to promote cultural progress "since a prohibition of such use would inhibit subsequent writers from attempting to improve upon prior works and thus . . . frustrate the very ends sought to be attained."[109]

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100. Folsom v. Marsh, 6 Hunt Mer. Mag. 175, 9 F. Cas. 342 (C.C.D. Mass. 1841).

101. 17 U.S.C. § 107.

102. *See* Evans, *supra* note 4, at 877.

103. *See* Olufunmilayo B. Arewa, *The Freedom to Copy: Copyright, Creation and Context*, 41 U.C. DAVIS L. REV. 477, 547–48 (2007). "[C]opying considered in this context typically related to reprinting existing works, at times in an abridged format." *Id*. (citing WILLIAM F. PATRY, THE FAIR USE PRIVILEGE IN COPYRIGHT LAW 5 (1985)).

104. Landes, *supra* note 46, at 9.

105. *Id*. at 10–11.

106. Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 578–79 (1994).

107. Landes, *supra* note 46, at 10.

108. Arewa, *supra* note 103, at 551.

109. Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 549 (1985) (citing H.

Courts apply a four-factor test to determine whether an unauthorized use is fair.[110] The first factor analyzes the character and purpose of the defendant's use of the original work to assess the productive or transformative nature of the new work.[111] This first factor is considered the "heart" of the fair use inquiry.[112] Courts have recognized two factors necessary to measure purpose and character: the degree to which a use is "transformative," and the profit or non-profit character of the use.[113] A work is transformative if it embodies contributions by the second author that are socially beneficial for a purpose or in a manner different from the copied work.[114] In other words, courts assess whether the resulting work merely "supersedes" the objects of the copied work "or instead adds something new, with a further purpose or different character, altering the first with new expression, meaning, or message."[115] Protecting transformative uses is particularly important and valuable in the case of appropriation art production because the stock in trade of appropriation art is transforming what already exists into a new creative work.

Transformative uses certainly include the enumerated purposes, but they also go beyond them.[116] The transformative analysis seems to contemplate a wider spectrum of permissible uses. In light of this possibility, one scholar asserts that the transformative inquiry can be reformed to include: 1) creative works beyond the enumerated purposes; 2) expressive purpose beyond the merely functional; 3) the sufficiency (or lack) of minimal aesthetic alterations; and 4) less importance given to market harm when the use is deemed transformative.[117]

To survive an infringement inquiry, the resulting work must be

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BALL, LAW OF COPYRIGHT AND LITERARY PROPERTY 260, 260 (1944)).

110. Evans, *supra* note 4, at 879. The four factors are:

> (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.

111. *Id*. at 879 (citing MARSHALL A. LEAFFER, UNDERSTANDING COPYRIGHT LAW 487, 495 (5th ed. 2010)). "Productive use" occurs when another uses the copyrighted works by adding her own creative edge. LEAFFER, UNDERSTANDING COPYRIGHT LAW at 490. "Transformative use" occurs when value is added to the copyrighted work by "new information, new aesthetics, new insights and understandings." *Id.*

112. Davis v. The Gap, Inc., 246 F.3d 152, 174 (2d Cir. 2001).

113. Gorman, *supra* note 31, at 301.

114. *See* Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1111 (1990).

115. Gorman, *supra* note 31, at 302 (citing Campbell, 510 U.S. at 579).

116. *See id*. at 302.

117. *See id*.

creative, original, and transformative. These works must also serve primarily a beneficial and productive purpose beyond commercial gain. Of course, the first factor is just one of four. A court also assesses the nature of the copied work, the amount and substantiality of the work that is appropriated and incorporated into the resulting work, and the effect on the potential market. However, assuming the character or purpose of use is sufficiently transformative, less weight could presumably be given to the other three factors, especially in the case of appropriation art forms.

Until fair use reflects the cultural context and norms of how collaborative and cumulative art forms like visual art and music are actually created, it will fail to embrace or at least protect the production of innovative works like Koons's visual collage and Public Enemy's aural collage. Yet, until originality (discussed in greater detail below) no longer trumps collaborative and cumulative creative production, such normative realities will be viewed through the myopic lens of an idealized notion of independent creation.

In light of copyright's goals of societal and cultural progress, transformative uses that, through cumulative creativity, re-contextualize the original in a new light advance those goals and therefore militate in favor of fair use, at least as to the first factor in the analysis.[118] A wider spectrum of fair use in general and transformative uses in particular, I argue, broadens access to copyrighted works by second-generation authors who seek to innovate further beyond them, presumably in alignment with copyright's constitutional goal of progress.[119] In turn, the public will benefit from increased creative production, dissemination, and deposit of those creative endeavors into the cultural reservoir—indeed encouraging "cultural progress."

4. A Closer Look at Originality

Copyright values originality; that is, a literary or artistic work that is created independently rather than copied and possesses some low modicum of creativity. Assessing originality is a threshold question used to achieve administrative and enforcement efficiency by screening out works that would be created even in the absence of copyright protection, which is currently life of the author plus seventy years after the author's death.[120] Originality, of course, does not mean novelty. Therefore, two

118. *See id*. at 308–09, 318.

119. *See* Evans, *supra* note 4, at 879.

120. *See* William M. Landes, *Copyright, Borrowed Images and Appropriation Art: An Economic Approach*, 9 GEO. MASON L. REV. 1, 4–5 (2000).

works deemed similar (even substantially so or the same) may both receive protection if created independently.[121]

The value of originality has been referred to as a "by-product" of the Romantic authorship myth. That myth suggests writers of significance "break altogether with tradition to create something utterly new, unique—and in a word, "original."[122] Interestingly, even the "collective work" is defined in the Copyright Act as "constituting separate and independent works in themselves" that are combined to constitute a collective whole.[123] The concept of the Romantic author, however, is a relatively recent phenomenon and is completely at odds with the ways by which much of literary and artistic productions are created.[124]

Earlier expositions of authorship have shown that, as early as the mid–1700s, writers were not elevated above other contributors, but were viewed as one of numerous participants in creating a book.[125] This notion was solidified by William Wordsworth; he described his concept of "genius" as "the introduction of a new element into the intellectual universe: or . . . the application of powers to object on which they had not before been exercised, or the employment of them in such a manner as to produce effects hitherto unknown."[126]

Michel Foulcault is credited for having brought the fallacy of this belief to light in his 1969 essay, *What is an Author?*[127] In that essay,

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121. *See* Gorman, *supra* note 31, at 292.

122. Martha Woodmansee, *On the Author Effect: Recovering Collectivity*, 10 CARDOZO ARTS & ENT. L.J. 279, 280 (1992) (also available at http://cyber.law.harvard.edu/IPCoop/92wood.html).

123. 17 U.S.C. § 101. In contrast, the term "joint work" appears technically to capture the essence of collaborative effort, in that it recognizes as one work separate creative efforts. *Id*. However, some courts have held a collaborator to be a "joint author" only if she contributes a separately copyrightable work, at least when the copyrightability test is applied. *See* Erickson v. Trinity Theatre, Inc., 13 F.3d 1061, 1069 (1994). In that case, the court considered two ways to determine whether a collaborator's contribution was sufficient to rise to the level of authorship required for copyright protection. One is Nimmer's *de minimis* test that requires only that the combined product of joint efforts be copyrightable (an original work of authorship fixed in a tangible medium). The other, which the court adopted ultimately, was the Goldstein copyrightability test. That test requires that each person's contribution be separately copyrightable. *Erickson*, 13 F.3d at 1069.

124. *See* Woodmansee, *supra* note 122, at 280.

125. *Id*.

126. *See id*. at 280 (citing William Wordsworth, *Essay, Supplementary to the Preface*, *in* LITERARY CRITICISM OF WILLIAM WORDSWORTH 158, 184 (Paul M. Zall ed., 1966)).

127. *See generally* Michel Foucault, *What is an Author?*, *in* TEXTUAL STRATEGIES: PERSPECTIVES IN POST-STRUCTURALIST CRITICISM 141–60 (Josué V. Harari ed., 1979). Peter Jaszi explained Foucault's influence as follows: "[he] asked literary critics and historians to question the received modern idea of 'authorship,' and to reimagine its future by reunderstanding its past." Peter Jaszi, *On the Author Effect: Contemporary Copyright and Collective Creativity*, 10 CARDOZO ARTS & ENT. L.J. 293, 293 (1991–92).

Foulcault declared the Romantic author a modern creation and questioned its legitimacy in modern writing practices. However, from the Middle-Ages through the Renaissance period, collaborative and cumulative writings were the predominant and most valued means of creating.[128] Additionally, in other cultures, collaboration and oral traditions are lauded for preserving and passing on cultural knowledge.[129]

In the eighteenth century, it was common for clergy to "borrow" from and build upon existing texts.[130] In fact, in light of digital technology and the Internet, coupled with user expectations and new "social networking" norms, most of the writing created in the twenty-first century—and creativity in general—is in some way cumulative and collaborative.[131] This leads me to the conclusion that appropriation in the production of literary and artistic works is more the rule than the exception. Accordingly, if questioned in writing disciplines, the idea of Romantic authorship is even more suspect in other creative disciplines—most notably music performance and visual arts, especially when expressed as appropriation art.

5. Overprotection and Misuse

The utilitarian goal of copyright strikes a theoretical balance between incentivizing the author with exclusive rights and protecting the users' ability to make other uses that fundamentally support societal progress.[132] But domestic policy has given way to the globalization of copyright.[133] In light of the integration of global communications and financial and cultural markets, continued globalization is inevitable.[134] In turn, this reality renders the copyright regime particularly vulnerable and unstable given the rapid and constant advances in technology used to create, reproduce, and disseminate creative works in changing domestic

128. *See* Woodmansee, *supra* note 122, at 281 ("From the Middle Ages right down through the Renaissance new writing derived its value and authority from its affiliation with the texts that preceded it, its derivation rather than its deviation from prior texts.").

129. *See* Netanel, *supra* note 89, at 274 (noting that art and literature are oriented to transmit "the wisdom of the ancients" rather than to proffer new concepts and ideas).

130. *See* Woodmansee, *supra* note 122, at 283.

131. *See id*. at 288 (citing a 1990 study of professional writing practices that included business, government, industry, the sciences and social sciences conducted by Andrea Lunsford & Lisa Ede, SINGLUAR TEXTS/PLURAL AUTHORS (1990)). The author suggested that the last purported "bastion" of independent creation may be in the arts and humanities. *Id*. at 289.

132. *See* Marshall A. Leaffer, *Engineering Competitive Policy and Copyright Misuse*, 19 DAYTON L. REV. 1087 (1994).

133. *See* Netanel, *supra* note 89, at 219.

134. *See id*.

and international markets.[135]

Taken together, governmental overprotection coupled with private misuse has created an environment extremely hostile to creativity and the societal progress that would follow. Add to that the reality of copyright as a strict liability rule and the widely and wildly varying statutory damages awards, and one can see clearly how muddied the copyright waters have become.

a. Overprotection

A series of legislative adjustments to extend the breadth and duration of copyright protection coupled with pro-rights-holder judicial interpretations have led to substantial overprotection of the copyright monopoly. In fact, copyright, unbridled, renders access more expensive by driving up transaction costs.[136] One of the greatest threats to fair uses of existing works is the stifling effect at the axis of rights and access by onerous, overly restrictive copyright laws. One clear example is the deleterious impact of copyright overprotection on visual and musical appropriation art forms due in substantial part to traditional notions of independent creation and its purported value over collaborative and cumulative means of creation.[137]

However, Congress has responded throughout the years to lobbying efforts of those industries most impacted by market harm concerns (the software and entertainment industries, primarily) by continuing to extend the duration and substantive protection of the copyright monopoly.[138] Specifically, from the mid-twentieth century until today, the confluence of economic, ideological, and political factors has led Congress to extend and to expand the subject-matter, scope, and duration of the copyright monopoly far beyond "exclusive rights" to authors and inventors for "limited times."[139] In fact, for every amendment to the 1976 Copyright Act that afforded rights holders' greater protection, little—or at least less—has been done to preserve space for access to and uses of

135. *See id*. at 225.

136. *See id*. at 248.

137. Evans, *supra* note 4, at 885–93.

138. *See generally* Piracy and Counterfeiting Amendments Act of 1982, Pub. L. No. 97-180, 96 Stat. 91, 93 (amending § 506(a) [criminal liability], title 17, *United States Code* and title 18 of the *United States Code*), enacted May 24, 1982; Semiconductor Chip Protection Act of 1984, title III of Pub. L. No. 98-620, 98 Stat. 3335, 3347 (provided design protection for semiconductor chips), November 8, 1984; Visual Artists Rights Act of 1990, title VI of the Judicial Improvements Act of 1990, Pub. L. 101-650, 104 Stat. 5089, 5128; Architectural Works Copyright Protection Act, title VII of the Judicial Improvements Act of 1990, Pub. L. 101-650, 104 Stat. 5089, 5133 (1990).

139. Evans, *supra* note 4, at 869–70.

copyrighted works that might maintain the delicate (and at times illusory) balance of the rights/access dichotomy.[140]

The pro-rights-holder protectionism via the strengthening of both the breadth and duration of copyright certainly may account for the economic boom for certain IP-intensive industries. The economic value of intellectual property—indeed its propertization—has grown in kind.[141] As the economic growth of the manufacturing sector, particularly in the United States, has grown incrementally—and sometimes sputtered along—(even despite a slight uptick in recent years),[142] the bottom lines of industries, fueled primarily by intellectual property production and exploitation, continue to grow at an exponential pace.

Nonetheless, "fair use" industries have contributed significantly to this country's bottom line. The 2010 Computer & Communications Industry Association illustrates this point. The updated study shows the significant contribution made to our economy by industries that depend on the limitations to copyright protection when engaged in commerce.[143] This report about "fair use" industries shows that the contributions are significant and demonstrates how important balanced copyright is to the national economy, exports, technological leadership, and job creation.[144]

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140. For a non-exhaustive list of rights-based amendments, *see supra* note 138. The following is an illustrative list of access-based amendments: Pub. L. No. 96-517, 94 Stat. 3015, 3028 (amending §101 and §117, title 17, *United States Code,* regarding computer programs), enacted December 12, 1980; Pub. L. No. 97-366, 96 Stat. 1759 (amending §110 title 17, *United States Code,* regarding the exemption from copyright liability of certain performances of nondramatic literary or musical works), enacted October 25, 1982; Technology, Education, and Copyright Harmonization Act of 2002, Division C, Title III, Subtitle C of the 21st Century Department of Justice Appropriations Authorization Act, Pub. L. 107-273, 116 Stat. 1758, 1910 (Nov. 2, 2002), *amending*, 17 U.S.C. 101, *et seq*.

141. *See generally* Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 784 (2007) (citing Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2667 (1994)).

142. The U.S. manufacturing sector contracted in June 2012 but the overall economy grew for the 37th consecutive month. INS. FOR SUPPLY MGMT., http://www.ism.ws/ISMReport/content.cfm?ItemNumber=10748&navItemNumber=12949 (last visited July 23, 2012). The sixteen manufacturing industries are: Primary Metals; Fabricated Metal Products; Petroleum & Coal Products; Apparel, Leather & Allied Products; Transportation Equipment; Miscellaneous Manufacturing; Furniture & Related Products; Plastics & Rubber Products; Machinery; Textile Mills; Wood Products; Electrical Equipment, Appliances & Components; Food, Beverage & Tobacco Products; Printing & Related Support Activities; Chemical Products; and Paper Products. *See* MFRTECH.COM, http://www.mfrtech.com/articles/8085.html (last visited Aug. 8, 2011).

143. *See* Rogers & Szamosszegi, *supra* note 99. This second update to the original 2007 report includes data for two additional years, 2008 and 2009. This period includes data reflective of the downturn due to the recession and shows that even fair use economy sector were negatively impacted but still remained steady when measured by overall value added and in comparison to the rest of the U.S. economy.

144. *See id*.

The report is important because it demonstrates clearly the value of fair use industries and shows that they promote innovation and are a major catalyst of the U.S. economy.[145] Examples of the relevant industries include manufacturers of consumer devices that allow for personal copying of copyrighted works (DVR), educational institutions (colleges and universities), software developers, and Internet search and web hosting providers (Google and AOL).[146] Industries that benefit from limitations on copyright rely on the non-copyrightability of facts,[147] the idea/expression dichotomy,[148] fair use,[149] library uses,[150] first-sale doctrine,[151] Internet Service Provider safe harbor provisions,[152] the copyright term of protection,[153] and the absence of copyright protection in U.S. Government works.[154]

The report summarizes economic activity and growth in five areas: revenue, value-added, employment, productivity, and exports. In 2008 and 2009, fair use industries generated a total revenue averaging $4.6 trillion, a thirty-five percent increase over 2002 revenues. Value-added[155] by fair use-reliant industries averaged $2.4 trillion, approximately seventeen percent of the total U.S. current-dollar gross domestic product.

Some may argue this economic reality lends credence to the assertion that strong, robust intellectual property laws can successfully incentivize and spur economic development. But the economic incentive was meant to be a *means* to the end of promoting progress, not the end itself. In light of the concerns of the framers of the Constitution about governmental control and monopolistic activities, intellectual property monopolies were never intended to decimate the valuable cultural "space" that users and second-generation creators might enjoy to access lawfully protected

145. *See id*.

146. These industries are referred to as "fair use" industries because they rely on fair use and other limitations and exceptions to use copyrighted works without permission from the owner.

147. 17 U.S.C. § 102(a).

148. 17 U.S.C. § 102(b).

149. 17 U.S.C. § 107.

150. 17 U.S.C. § 108.

151. 17 U.S.C. § 109.

152. 17 U.S.C. § 512.

153. 17 U.S.C. §§ 302–304 (to the extent one views the current duration of protection a limitation).

154. 17 U.S.C. § 105.

155. Defined as "a firm's total output minus its purchases of intermediate inputs and is the best measurement of an industry's economic contribution to national GDP." Rogers & Szamosszegi, *supra* note 99.

works and make *de minimis* and fair uses of them in the interest of cultural and technological progress. For example, none of the exclusive rights granted to the copyright owner controlled access, at least not originally.[156]

b. Misuse

In addition to overprotection, copyright misuse is another concern; in fact, the confluence of the two is likely alarming to appropriation artists. The copyright misuse doctrine, an affirmative defense to infringement, is an owner's use of her monopoly in a way that attempts to extend protection beyond that intended by the exclusive grant or necessary to protect economic interests or spur innovation and creative production. Stated another way, it is use of copyright in some anticompetitive way that is contrary to the public policy that supports the copyright monopoly.[157] Copyright misuse owes its origin to the patent misuse doctrine articulated by the Supreme Court in *Morton Salt Co. v. G.S. Superego Co*.[158] The Court acknowledged the defense as an extension of the equitable doctrine of unclean hands to the patent context.[159] Thereafter, the Fourth Circuit extended misuse specifically to copyright law in *Lasercomb America, Inc. v. Reynolds*.[160]

Misuse can come in the form of both private technological and contractual fences–encryption technology in the former instance and tying[161] in the latter case. For example, these fences are erected by rights holders to prevent or at least substantially limit access even to non-copyrightable elements of an otherwise protected work, or limit a user's ability to make fair or *de minimis* use of a work under the guise of

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156. *See infra* Part III. C.

157. *See* JuNelle Harris, *Beyond Fair Use: Expanding Copyright Misuse to Protect Digital Free Speech*, 13 TEX. INTELL. PROP. L.J. 83, 111–12 (2004).

158. Morton Salt Co. v. G. S. Suppiger Co., 314 U.S. 488 (1942).

159. *Id*. at 491–93.

> It is said that the equitable maxim that a party seeking the aid of a court of equity must come into court with clean hands applies only to the plaintiff's wrongful conduct in the particular transaction which raises the equity, enforcement of which is sought. . . . Undoubtedly, 'equity does not demand that its suitors have led blameless lives,' but additional considerations must be taken into account where maintenance of the suit concerns the public interest as well as the private interest of the suitors.

Id. (citations omitted).

160. *See* Harris, *supra* note 157, at 110–11 (citing Lasercomb Am., Inc. v. Reynolds, 911 F.2d 970 (4th Cir. 1990)).

161. Tying is defined as "an agreement in which a vendor conditions the sale of a particular product on a vendee's promise to purchase an additional, unrelated product." *See* THE FREE DICTIONARY, http://legal-dictionary.thefreedictionary.com/Tying+Arrangement (last visited Aug. 10, 2012).

copyright protection.[162]

Although I am a strong proponent of copyright reform to realign the law with original public policy considerations or even wholesale revision[163] or creation of a hybrid regime akin to the SCPA,[164] I argue that strong recognition of the existing copyright misuse doctrine would be a practical, short-term solution to protect cumulative creation in creative genres that benefit from, and have traditionally relied on such in a way that causes little, if any, market harm to the rights holder.

PART III: REVERSE-ENGINEERING

This Part explores the history of reverse-engineering in the inventive context under trade secret law and as applied to digital goods under patent, copyright, and a hybrid regime. This Part also explores how reverse engineering might apply to appropriation art forms like visual collage and digital music sampling used to create aural music collage.[165] I note at the outset, however, that attempting to develop a coherent understanding and application of reverse engineering of electronic products and productions is challenging. Copyright, patent, trade secret, and the DMCA all treat reverse engineering differently,[166] yet, these laws often apply to the same electronic goods. Therefore, it is more important than ever to reconcile inconsistencies and the debilitating effects of a schizophrenic IP system on the whole.[167]

In *Kewanee Oil Co. v. Bicron Corp.*,[168] the United States Supreme Court described the process of "reverse engineering" as "starting with the

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162. *See* Landes, *supra* note 46, at 5–6 (noting uses by rights holders of contracts and private enforcement mechanisms to further discourage and impede unauthorized access and use). The author also notes the limitations of contractual fences in that they are difficult to enforce against anyone other than parties to the contract. *Id*. at 6. *See also* Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095 (2002) (arguing that because the DMCA protections for copyright holders seems ripe for abuse, limits on overreaching beyond the scope of copyright could be imposed by applying the misuse doctrine post-DMCA).

163. *See generally* Paul Goldstein, *Copyright on a Clean Slate*, 48 HOUS. L. REV. 691 (2011). Professor Goldstein offers basic, substantive, wholesale changes in the copyright architecture itself rather than specific doctrinal reforms within the existing framework. *But see* Pamela Samuelson et al., *The Copyright Principles Project: Directions for Reform*, 25 BERKELEY TECH. L.J. 1175 (2010) (arguing that "although copyright law today works reasonably well in some domains, it can be improved and should be refined in light of dramatic technological advances"). *Id*. at 1176.

164. *See infra* Part III for a discussion of the Semiconductor Chip Protection Act as an example of such a hybrid regime.

165. For a detailed history of music sampling as an integral part of hip hop culture and its role in innovative music creation. S*ee generally* Evans, *supra* note 4**.**

166. Weiser, *supra* note 16, at 553 (citations omitted).

167. *See id*.

168. Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 476 (1974).

known product and working backward to divine the process which aided in its development or manufacture."[169] The underlying goal of reverse engineering appears to be two-fold.[170] First, is to determine whether intellectual property rights have been infringed.[171] Second, is to develop competing or interoperable products.[172] However, the fundamental purpose is discovery, "albeit of a path already taken."[173]

The process of reverse engineering occurs when, through a valid transfer of a publicly available product, that product is examined directly to determine its overall composition, component parts, technology, and any other characteristics that allow it to function.[174] The reverse engineer deconstructs the product to examine and determine how it was created.[175] Through this process, a competitor is able to uncover manufacturing and design secrets to use in her own innovations as a result of reverse engineering an existing product.[176]

Reverse engineering is a well-established right in trade secret law[177] and is deemed a lawful and fair means to compete by acquiring trade secret information about an invention.[178] The Supreme Court characterized reverse-engineering as "an essential part of innovation."[179] Copyright law has recognized reverse engineering for computer programs under the fair use and misuse doctrines.[180] However, no reverse engineering right exists in the traditional patent law context

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169. *See id*.

170. *See* Evans, *supra* note 4, at 897.

171. *See* J.T. Westermeier, *Reverse Engineering*, 984 PLI/PAT 289, 293 (2009).

172. *See id*. at n.171.

173. JAMES POOLEY, TRADE SECRET § 5.02 at 5–19 (2012).

174. 10 Hawkland UCC Series UCITA § 118:1 (West 2011).

175. Francis H. Hare, Jr. & James L. Gilbert, § 6:26. Reverse Engineering: An argument against the manufacturer obtaining a protective order.

176. *Id*.

177. A trade secret can be defined as "any information that can be used in the operation of a business or other enterprise and that is sufficiently valuable and secret to afford an actual or potential economic advantage over others." Restatement (third) of Unfair Competition § 39 (1995). It is not unusual for trade secrets to have an overlap with copyright or patent. Craig L. Uhrich, *The Economic Espionage Act- Reverse Engineering and the Intellectual Property Public Policy*, 7 MICH. TELECOMM. TECH. L. REV. 147, 165 (2001).

178. *See* Pamela Samuelson and Suzanne Schotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE. L. J. 1575, 1583 (2002). *See Bonito Boats*, 109 S. Ct. at 986; Kewanee Oil Co. v. Bicron Corp., 94 S. Ct. 1879 (1974); Cohen & Lemley, *supra* note 62, at 17. ("Under trade secret law, there is no question that reverse engineering is legal.").

179. *See Bonito Boats*, 109 S. Ct. at 982.

180. Cohen & Lemley, *supra* note 81, at 17–18. *See* Sega Enters., Ltd. v. Accolade, Inc., 785 F. Supp. 1392, 1399 (N.D. Cal. 1992), *aff'd in part*, *rev'd in part*, 977 F.2d 1510 (9th Cir. 1993) (reverse engineering to develop non-infringing competing or compatible software is a fair use of copyrighted software).

(although it is also not expressly prohibited).[181]

The right to reverse engineer does not exist in patent law because disclosure of patent specifications is required. Disclosure makes reverse engineering a patented invention unnecessary because the disclosure in the patent application should provide sufficient information about how to make the invention.[182] This is known commonly as the test of enablement; that is, whether the disclosure, when filed, "contained sufficient information regarding the subject-matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention."[183]

Accordingly, there is no need to reverse engineer a traditionally manufactured invention that is readily apparent and embodied in the invention (a car, airplane or axiomatic widget, for example).[184] Of course, one who purchases a product containing a patented invention may lawfully disassemble it under the first sale principle.[185] However, if through a process of reverse engineering a second-comer makes or uses patented subject matter, such is deemed an infringement of a patented invention (unless an exception or affirmative right applies based on the product involved).[186]

A. Reverse Engineering in the Traditional Manufacturing Context

The process of reverse engineering varies depending on the item

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181. *See* Cohen & Lemley, *supra* note 81, at 6–7 (noting that although no reverse engineering right exists, patent law does contain other limiting doctrines such as "experimental use" and "exhaustion").

182. Samuelson & Scotchmer, *supra* note 178, at 1584.

183. 35 U.S.C. § 112.

184. Cohen & Lemley, *supra* note 62, at 6.

185. Samuelson & Scotchmer, *supra* note 178, at 1584.

186. 1 ROGER M. MILGRIM, MILGRIM ON TRADE SECRETS § 1.05[5] (1999). The Manual of Patent Examining Procedure provides:

> The standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court decision of *Mineral Separation v. Hyde,* 242 U.S. 261, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). Accordingly, even though the statute does not use the term "undue experimentation," it has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Telectronics, Inc.,* 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.").

MPEP (8th ed. Rev. 8, July 2010).

being examined.[187] For example, in the automotive manufacturing industry, a competitor might disassemble a vehicle to discover its component parts. Those parts, in turn, are analyzed so that the competitor can develop similar, better, or less expensive components to be used in the competitor's vehicles.[188] This leads to a more efficient product, a benefit to the consumer (a.k.a. end user). And in the complicated mechanical engineering industries of aircrafts and guided missiles, reverse engineering can be difficult and that difficulty creates an incentive for innovation due to the long lead-time given to the inventor before a second-comer can enter the market.[189]

B. Reverse Engineering in the Digital Context

The digital environment presents unique concerns regarding whether reverse engineering should be permitted because reverse engineering of traditionally manufactured goods is different from reverse engineering of products in the digital market.[190] The question of whether software is patentable subject matter, whether wise or foolhardy, is a foregone conclusion.[191] But, whether reverse engineering of software should be permitted is a question open for debate. Professors Cohen and Lemley assert two main justifications to defend the importance of reverse engineering in the computer software context: to preserve competition and compatibility.[192] Other noted commentators have argued that reverse engineering has a competitively healthy and beneficial role in the case of digital goods and assert the better course is to regulate post-reverse engineering activities rather than the process of reverse engineering itself.[193]

When a traditionally manufactured good enters the market, the inventive know-how invested to produce that product (beyond what is

187. Craig L. Uhrich, *The Economic Espionage Act-Reverse Engineering and the Intellectual Property Public Policy*, 7 MICH. TELECOMM. TECH. L. REV. 147, 156 (2001).

188. *See* Hare & Gilbert, *supra* note 175, at § 6:26. *See also* Uhrich, *supra* note 187, at 156. The author describes other examples of reverse engineering in the manufacturing context. For example, reverse engineering is also used for mechanical devices such as turbine or cargo containers. In that context reverse engineering involves taking detailed sketches, measurements or physically taking apart the actual container. One of the most common areas reverse engineering is used in is the software industry where a computer chip is stripping away its layers to study the structure of the chip.

189. Richard C. Levin, *Patents in Perspective*, 53 ANTITRUST L. J. 519, 521 (1984).

190. Samuelson & Scotchmer, *supra* note 178, at 1579.

191. Cohen & Lemley, *supra* note 81, at 8.

192. *Id.* at 21 (asserting that "[i]n markets characterized by network effects, such as software, this latter objective [preserving compatibility] is particularly important.").

193. Samuelson & Scotchmer, *supra* note 178, at 1652.

disclosed, as noted below) remains at the factory, so to speak. Therefore, only a minimal amount of know-how is at risk of being acquired (at least quickly) through the process of reverse engineering.[194] Products in the digital market, however, often have a large quantity of know-how embedded in the product itself that can be easily accessed through the process of reverse engineering.[195] The copyrightable expression and non-protectable elements (i.e., those elements that fall under 102(b) and outside of copyright protection) are inextricably linked in the physical copy.[196] The object code is indecipherable to humans and therefore cannot be understood until first accessed.[197] However, before computer programmers sought copyright protection for computer programs, it seems the copyright regime had little need for reverse engineering.[198]

Copying in the process of reverse engineering digital goods is considered fair use under certain circumstances.[199] For example, the practice is prevalent in the video game industry. A key goal of any successful video game developer is the cumulative development of ideas based on existing games to design a new game deemed as good as or even better than that of the first-comer.[200] Such a goal is the purpose of intellectual property law as well, to promote progress in society by improving the lives of its citizens through cultural enrichment and improving the goods (whether creative or inventive) they use and consume.

Three cases established early in the industry's development that reverse engineering of software components in video game hardware is permissible under copyright law, even if intermediate copying occurs.[201] *Sega Enterprises v. Accolade, Inc.*,[202] is the most often cited of the trio. In that case, the Ninth Circuit held that reverse engineering is permissible if it provides access to non-protectable elements and the copier has a "legitimate reason" to copy.[203]

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194. *Id*. at 1579.

195. *Id*.

196. *See* Craig Zieminski*, Game Over for Reverse Engineering?*, 13 J. TECH. L. & POL'Y 289, 296 (2008).

197. *See id*. at 296.

198. *See id*. at 294.

199. *See id*.

200. Joe Linhoff, *Video Games & Reverse Engineering: Before and After the Digital Millennium Copyright Act*, 3 J. TELECOMM. & HIGH TECH. L. 209, 220 (2004).

201. Zieminski, *supra* note 196, at 294.

202. Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1992).

203. *See* Zieminski, *supra* note 196, at 295. *Sega* was decided before Congress enacted the Digital Millennium Copyright Act ("DMCA"). However, Congress made clear its intent to codify the holding. In reality, however, the DMCA as applied is far more restrictive of reverse

Some commentators assert that reverse engineering is one of the primary reasons the video game industry has been so successful in innovation and rapid development.[204] One explanation seems to be that reverse engineering uncovers multiple aspects of the game designs not readily apparent on the surface.[205] Through reverse engineering, a developer can study a game's inner-workings through a frame-by-frame analysis and track every detail and every change.[206]

As with other types of digital files, a digital music recording can be "reverse engineered" as well—that is, accessed and studied to reveal hidden information that exists within the recording itself.[207] Such action can "quickly identify, select and isolate interesting features in a mix, such as individual notes, instruments and voices."[208] Digital reverse engineering of music allows a reverse engineer to look at the hexadecimal code[209] and through that code identify, among other things, what program was used to create the work and which add-ons or plug-ins may run in concert.[210] With this know-how, a second-generation music producer can do what innumerable creatives like Public Enemy have done throughout the ages—use technology as a tool of musical production and, in fact, a musical instrument to repurpose, revise, and innovatively create something new from the stock in trade that already exists.

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engineering than the practice was under the rule set forth in *Sega*. *Id*.

204. Cohen & Lemley, *supra* note 62, at 3 (noting the software industry "is characterized by rapid sequential innovation, reuse and re-combination of components, and strong network effects that privilege interoperable components and products."); Linhoff, *supra* note 200, at 214.

205. Linhoff, *supra* note 200, at 220.

206. *Id*.

207. James Griffin, *Copyright in Music: A Role for the Principles of Reverse Engineering*, 30 LEGAL. STUD. 653, 664 (2010).

208. *Id*.

209. The term hexadecimal literally means "of, relating to, or based on the number 16." ANSWERS.COM, http://www.answers.com/topic/hexadecimal (last visited Mar. 28, 2012). The hexadecimal code comes from the system of the same name. Webopedia explains that the term "[r]efers to the base-16 number system, which consists of 16 unique symbols: the numbers 0 to 9 and the letters A to F. For example, the decimal number 15 is represented as F in the hexadecimal numbering system. The hexadecimal system is useful because it can represent every byte (8 bits) as two consecutive hexadecimal digits. It is easier for humans to read hexadecimal numbers than binary numbers." WEBOPEDIA, http://www.webopedia.com/TERM/H/hexadecimal.html (last visited Oct. 17, 2011).

210. Griffin, *supra* note 207, at 664.

C. Reverse Engineering & Copyright

1. Fair Use

In addition to some protection for reverse engineering under section 117 of the Copyright Act,[211] case law has also protected as fair use certain intermediate copies in software development made in the creative process.[212] However, this is not uniformly applied across all types of copyright subject matter and no court has held that all reverse engineering is *necessarily* a fair use. To be considered fair, the act of reverse engineering (at least conceptually) must help to uncover un-protectable elements of the copyrighted work not readily apparent.[213] In this way, intermediate copying is seen not only as a private benefit to the copyist, but also of benefit to society.[214] Society benefits by the further dissemination of unprotected ideas and processes embodied in creative products distributed by sale in the mass market.[215]

Judges called on to interpret and apply copyright law and to assess fair use have often developed industry-specific rules within and across creative genres to address unique considerations. For example, the court in *A.A. Hoehling v. Universal City Studios, Inc.*[216] noted that broad use of existing historical works should be granted to second-generation borrowing authors who use historical subject matter in later works, including theories or plots.[217]

Because the current copyright system has already struggled to keep pace with the challenges that twenty-first century technologies have presented to existing (and arguably dated) laws, and piecemeal

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211. The "archival" privilege to create backup copies of computer software is an exception to the exclusive reproduction right provided in §106 of the Act. The § 117 privilege extends only to computer programs and not to other types of works. It permits an owner of a legal copy of an original computer program to copy without permission of the copyright owner if the new copy is being made for archival (i.e., backup) purposes and the archival copy is either destroyed, or transferred with the original copy, once the original copy is sold, given away, or otherwise transferred.

212. LCOMTECH § 1:118 (reverse engineering under copyright).

213. *See* Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1518 (9th Cir. 1992). S*ee also* Bateman v. Mnemonics, Inc., 79 F.3d 1532, 38 U.S.P.Q.2d (BNA) 1225 (11th Cir. 1996) ("[A]lthough there has been some uncertainty as to whether reverse engineering constitutes copyright infringement . . . We find the Sega opinion persuasive in view of the principal purpose of copyright the advancement of science and the arts.").

214. *See* LCOMTECH, *supra* note 212 (noting that "while intermediate copying yields a private benefit, it also promotes a public interest.").

215. *See id*.

216. Hoehling v. Universal City Studios, Inc., 618 F.2d 972 (2d Cir.), *cert denied*, 449 U.S. 841 (1980).

217. *Id*. at 978.

amendments have obscured both clear delineations and an appropriate balance between exclusive rights and access, copyright should be reverse-engineered so that patent policy serves as a guidepost for copyright reformers in the balance of individual benefits and the benefits to society of a legal framework that values and protects cumulative creation in the copyright context. Any substantive reform should consider policies supporting reverse engineering in the inventive context to incentivize cumulative creation to bolster robust innovation. Copyright reform, in this regard, may well have to yield to some hybrid legislative framework. Precedent for such a *sui generis* approach already exists; the Chip Act is an example of such an intellectual property hybrid.[218]

Both historical and current concepts of copyright are premised on a paradigm that presumes incorrectly that borrowing is generally antithetical to creativity and innovation and that creative works worthy of protection are always created independently.[219] The unsubstantiated presumption of the value of independent creation has disregarded the importance of copying in the creative process and has left its value "under-appreciated and under-theorized" in copyright jurisprudence.[220] Patent law and policy, on the other hand, supports and encourages further innovation and thereby seems to demonstrate greater fidelity to its Constitutional call for progress in the inventive context than does copyright.

2. The Digital Millennium Copyright Act

The Digital Millennium Copyright Act ("DMCA") expressly provides a limited exception to reverse engineer. Specifically, section 1201(f) allows a second-comer to reverse engineer software to create interoperable programs. The legislative history makes clear that this exception is for the purpose of creating something new and not simply to decrypt, access, and copy the existing software, which presumably would lead to unfair practices and potential market harm.[221] In this context, therefore, reverse engineering is encouraged and valued as an "intermediate"

218. *See infra* Part III D.

219. Evans, *supra* note 4, at 863.

220. Arewa, *supra* note 103, at 482 (citing Julie E. Cohen, *Creativity and Culture in Copyright Theory*, 40 U.C. DAVIS L. REV. 1151, 1152 (2007) (other citations omitted)).

221. *See* Jane C. Ginsburg, *Copyright Use and Excuse on the Internet*, 24 COLUM.-VLA J.L & ARTS 1, 7 (2000) (noting that "the legislative history made clear that the reverse engineering exception was added to permit circumvention of access controls on computer programs in order to promote the creation of new computer programs, not to promote circumvention of access controls.").

creative step toward a new expression of creativity. Accordingly, encouraging reverse engineering in this regard can be viewed as the type of cultural and artistic progress intended as a *quid pro quo* for copyright protection.[222]

D. The Chip Act

In 1984, Congress and the semi-conductor chip industry recognized both the value and limitations of a singular traditional intellectual property approach to the unique issues presented by that industry. Accordingly, Congress developed a *sui generis* framework incorporating aspects of copyright and patent law to address those industry-specific concerns in an attempt to provide at once both the optimal protection of exclusive rights and the optimal space for second-generation innovators to innovate further.[223] Despite the purportedly inconsequential impact of the Chip Act on the semi-conductor chip industry, the similarities between the concerns in the semi-conductor and fair use reliant mediums like appropriation art based largely on cumulative creation may prove illustrative if (or more likely when) Congress reforms copyright law.

The Chip Act's express reverse engineering provision allows a competitor to reproduce a mask[224] without the owner's permission in order to analyze it. Although analogous to the fair use doctrine in copyright law, the Chip Act's reverse engineering provision goes much further to permit second-comers to incorporate the results of their analysis into a subsequent original work; that is, to appropriate the result into a new work for purposes of further innovation.[225] This, I argue, is a desirable result.

The Chip Act is illustrative of a legislative framework Congress could create to sample patentesque policies regarding access of protected works to remix the copyright regime. This, in turn, might encourage and privilege a wider universe of collaborative and cumulative creative methods and resulting works, the type of which societal progress is

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222. *Id.*

223. *See* Evans, *supra* note 4, at 896.

224. A "mask work" is defined as:

> [A] series of related images, however fixed or encoded - (A) having or representing the predetermined, three-dimensional pattern of metallic, insulating, or semiconductor material present or removed from the layers of a semiconductor chip product; and (B) in which series the relation of the images to one another is that each image has the pattern of the surface of one form of the semiconductor chip product.

17 U.S.C. § 901(2).

225. Steven P. Kasch, *The Semiconductor Chip Protection Act: Past, Present, and Future*, 7 HIGH TECH. L.J. 71, 74 (1992).

born.[226] As others have argued, the continued piecemeal tinkering with the existing copyright framework is doing more harm than good due to the long history of legislative and judicial baggage that comes with such an incremental approach.[227]

PART IV: THE IP AXIS: WHERE DISTINCT REGIMES CONVERGE

This Part explores the blurring of the distinction between copyright and patent protection in the digital age. Additionally, this Part challenges historic notions of the bright-lined semantic demarcation between the terms "innovation" (traditionally attributed to patent law) and "creativity" (traditionally linked to copyright law). Because intellectual property laws must remain flexible and dynamic to reflect current needs, values and norms, the time has come for a new intellectual property regime that accepts that the historically distinct regimes have become inextricably linked.[228]

A dividing line has existed traditionally between "products" produced by industrial and commercial activity on one side and literary and artistic "productions" born of creative inspirational activity on the other.[229] Of course, in the twenty-first century, the line has been blurred, due largely to computer software—sometimes referred to as "industrial literature"—which is protected to some extent by both regimes.[230] In fact, the classical vision that subdivided the IP regimes into mutually exclusive compartments for industrial and artistic property "has irretrievably

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226. The following test has been suggested to ascertain when and whether a hybrid framework is prudent: The test is fourfold, and asks 1) whether the new right will fit harmoniously within the existing legal framework without violating any basic tenets of law, 2) whether the new right can be defined in a reasonably clear manner, 3) whether there is a cost-benefit advantage to implementing the new right, and 4) whether the new right will "enrich or enhance the aggregate public domain." *See* Robert W. Kastenmeier & Michael J. Remington, *The Semiconductor Chip Protection Act of 1984: A Swamp or Firm Ground?*, 70 MINN. L. REV. 417, 440–42 (1985).

227. Kristen Osenga, *Information May Want To Be Free, But Information Products Do Not: Protecting And Facilitating Transactions In Information Products*, 30 CARDOZO L. REV. 2099, 2138–39 (2009).

> [T]he existing regimes are simply ill-equipped to cover information products [which I call digital goods], even with modifications. If these systems were adapted to cover information products, there would likely be too much legislative and judicial baggage accompanying the new right and it is unlikely that an actual advantage would be realized.

Id.

228. *See* Reichman, *supra* note 53, at 517–18 (noting that numerous scholars have advanced a "unified field" approach).

229. *See id*. at 484.

230. *See id*. at 485.

broken down."[231] Some scholars also question whether the line ever existed.[232] Indeed, truly inspired innovation, whether artistic or inventive, does not simply begin and end in one hemisphere of the brain but rather from "harmonious integration of both."[233]

Copyright law had not been concerned with access to copyrighted works until computer software was deemed protectable subject matter. The copyright monopoly was intentionally limited to allow for access to and use of ideas, procedures, processes, systems, methods of operation, concepts, principles, and discoveries.[234] Digital goods presented unique problems of increased risk of substantial market harm because of the ease with which computer code could be infringed. Digital goods owners responded by creating technological "fences" to encrypt their products and control access to the encrypted data whether or not otherwise protected by copyright (or patent, for that matter). Without the DMCA, users and competitors could create technological measures to crack the code and access the products or to distribute decryption tools to others on a wide scale. The DMCA provisions gave rights holders an additional means to protect the underlying rights granted in section 106 of the Copyright Act.

The consequences of legislative barriers to access via anti-circumvention laws, however, seem to be four-fold. First, access protections may allow rights holders to misuse the monopoly by preventing wholesale access not only to protectable elements but un-protectable elements as well.[235] Armed with the sword and shield of the DMCA, rights holders can use a number of technological and other means to prevent or severely limit access and use of copyrighted works in ways traditional copyright protection does not.[236] Accordingly, otherwise fair or *de minimis* uses are prevented, thus extending legislative protection

231. *See id*. at 504–05 (explaining that this forced distinction "has been discredited by its inability to account for, or adequately deal with, the behavior of so many commercially valuable intellectual creations to which the regimes have or might apply.").

232. *See* Mandel, *supra* note 58, at 285 (challenging the dichotomy as erroneous because invention also involves elements of creativity and artistic endeavors can often involve logical, cognitive processes).

233. *See id*. at 286 (concluding the "conventional story" is flawed).

234. 17 U.S.C. § 102(b).

235. Nicolo Zingales, B.C. INTELL. PROP. & TECH. F. 1, 6 (2012) ("The most significant concern for the use of DRM is one that is often subject of consumers' complaints: "strategic" use of DRM technologies in the attempt to enforce intellectual property rights beyond their scope.).

236. "Technological controls" can take many forms (like hardware, software or some combination of the two) and are used generally "to prevent access to digital content without the permission of the content owner." *See* Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1100 (2003).

beyond what may be reasonable or necessary to protect against widespread piracy—both nationally and internationally—as well as any substantial market harm.[237]

Second, access limitations stifle cumulative creative effort of users. Collaborative and cumulative creation are an established normative behaviors in the digital age, especially in the online environment. Examples include social networking, peer-to-peer file sharing, blogging, and interactive gaming. Further, the proliferation of website sharing buttons and tools makes it easier to share content quickly with the click of a button.[238] Because collaborative and cumulative creative efforts are more ubiquitous than at any time in the history of copyright, the benefits to society cannot be denied.

Third, legal and private fences lead to further overprotection.[239] The breadth and duration of copyright protection already significantly delays placement of a protected work into the public domain. The DMCA, an additional legal fence that limits access even to unprotected elements, leaves even less "space" for fair, productive, and beneficial uses of pre-existing material that might have little if any threat to market harm. Therefore, the two doctrines relied on by second-generation creators like appropriation artists—fair use and public domain—are substantially compromised.[240] This leads to the last detrimental consequence. The *quid pro quo* inherent in the rights/access dichotomy is woefully out of balance, especially in this age of innovative creativity that often exists at the access of IP monopolies and therefore implicates both copyright and patent law. The aforementioned consequences resulted despite

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237. *See id.* (noting overprotection concerns when anti-circumvention laws are relied on by copyright holders in conjunction with technological controls to enjoy a heightened degree of control not attainable under the traditional copyright regime). Professor Burk makes another important point about the DMCA's purported benefits as necessary so the United States could meet its obligations under the World Intellectual Property Organization Copyright Treaty (WIPO). He clarifies that because contributory infringement theories already protect against purveyors of devices that lack "substantial non-infringing uses" the urgency and need was more fiction that fact. *Id*. at 1103. He explains: "the treaty requires only that signatory states provide 'adequate legal protection and effective legal remedies' against circumvention of technological controls." *Id*. at 1103–04.

238. *See* Maria Konnikova, *Behind The "Like" Button: Why We Share What We Share*, BIGTHINK.COM, http://bigthink.com/ideas/39779 (last visited Mar. 24, 2012). *See also* Bilal Ahmad, *The Benefits of Social Media Optimization*, TECHMAISH.COM, http://www.techmaish.com/benefits-of-social-media-optimization/ (last visited Mar. 24, 2012).

239. Zingales, *supra* note 235, at 6.

240. In cases involving fair use defenses, for example, courts have held fair use only applies to certain unauthorized uses of copyright and not unauthorized access to a copyrighted work. *See* Jacqueline Lipton, *The Law of Unintended Consequences: The Digital Millennium Copyright Act and Interoperability*, 62 WASH. & LEE L. REV. 487, 494 (2005).

legislative intent to the contrary.[241]

CONCLUSION

Despite the often-cited justifications for the copyright monopoly born out of the Intellectual Property Clause ("IP" Clause) of the United States Constitution[242] to promote cultural progress via an economic incentive, copyright protection has surpassed any rational understanding of "copying" and "limited times" noted in the IP Clause. Overprotection, and in some cases misuse, has led to a diminished capacity of creatives to incorporate existing works into new ones without fear of legal reprisal, even if the use is arguably fair or *de minimis*. A prime example is the tenuous relationship between copyright law and appropriation art forms, especially digital appropriation methods like music sampling.[243]

Yet, patent law—born of the same IP Clause—seems to have fared better in creating and sustaining laws and policies that contemplate, and in some ways protect, access to encourage cumulative innovation. The concept of cumulative effort is built into patent law, which recognizes as patentable subject matter "any new and useful improvement" on an otherwise patentable invention.[244]

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241. *Id*. at 494 (noting Congress's express intent for the DMCA not "to adversely impact existing limitations on copyright infringement and defenses to copyright infringement, the scope of contributory liability for copyright infringement, or rights of free speech in relation to copyright works.") (internal citations omitted).

242. U.S. CONST. art. I, § 8 cl. 8. The clause reads:

> The Congress shall have Power To lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence [sic.] and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States . . . [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.

Id.

243. "Appropriation" as defined in art history and criticism disciplines "refers to the more or less direct taking over into a work of art of a real object or even an existing work of art." TATE.ORG, http://www.tate.org.uk/collections/glossary/definition.jsp?entryId=23 (last visited Mar. 18, 2012). For a more complete discussion of appropriation art and copyright visit *The Patry Copyright Blog*, PATRY COPYRIGHT BLOG, http://williampatry.blogspot.com/2005/10/appropriation-art-and-copies.html (last visited: Mar. 18, 2012). *See* Kembrew McLeod & Rudolf Kuenzli, eds. *Cutting Across Media: Appropriation Art, Interventionist Collage, and Copyright Law*, Duke University Press 2011 (addressing issues of appropriation in popular culture in various cultural forms including altered billboards and the work of the renowned painter Chris Ofili, in hip-hop music and the compositions of Bèla Bartòk and Zoltàn Kodàly, and in audio mash-ups, remixed news broadcasts, pranks and culture jamming). *See also* Landes, *supra* note 46 (examining from the standpoint of economics the relationship between copyright law, borrowed images and appropriation art).

244. 35 U.S.C.A. § 101 (Westlaw 2011) ("Whoever invents or discovers any new and

The ability of the patent law regime, in its purest theoretical form, to protect and encourage second-comer innovation has outpaced copyright law's progress in that regard. I attribute such a result to the underlying and, in my opinion, misguided assumptions about the value of independent creation underlying the copyright regime. This assumption fails to appreciate how some types of literary and artistic works are created, embodied, and enjoyed, especially in light of the impact of digital technology on creative productions and art forms like appropriation art. Such methods of creation rely primarily on accessing and taking all or some part of something that already exists and incorporating it into something altogether new.

As technological advancements continue to outpace in-kind legislative adjustments, the need becomes more pressing to preserve the legal space second-comers require to access and to build upon existing creative works to create new ones.[245] Although the line between patent and copyright was once bright, clear, and perhaps necessary, with the addition of software to the subject matter of copyright and enactment of the Digital Millennium Copyright Act,[246] for example, the distinction between creativity (copyright) and invention (patent) seems to have been irreversibly blurred as well.[247]

Clearly, the copyright and patent monopolies each rest on distinguishable policy goals to incentivize different classes of resulting works.[248] Copyright is focused on original artistic productions and patent is concerned with novel, nonobvious, and useful inventive products. Yet, these distinct paradigms share a common theoretical and constitutional bond to promote societal progress. Both were legislatively prescribed antidotes intended to cure the public-goods problem that plagues intangible and inexhaustible products.[249] Because of this bond, both

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useful process, machine, manufacture, or composition of matter, *or any new and useful improvement thereof*, may obtain a patent therefor, subject to the conditions and requirements of this title.") (emphasis added).

245. *See* Evans, *supra* note 4, 848 n.24 [noting that the "rights/access" continuum refers to the balance (or imbalance, as the case may be) of protection of a creator's rights with the public's access to her creation]. *See also* Alina Ng, *Rights, Privileges and Access to Information*, 42 LOY. U. CHI. L.J. 89, 100 (2010) ("[E]conomic growth is dependent not only on the production and dissemination of information to society but also on society's ability to generate new wealth from existing forms of information.").

246. Digital Millennium Copyright Act of 1998, Pub. L. 105-304, 112 Stat. 2860 (Oct. 28, 1998), 17 U.S.C. 512, 1201–05, 1301–22; 28 U.S.C. 4001.

247. *See* J.H. Reichman, *supra* note 53, at 484 (noting the "line of demarcation [between copyright and patent regimes] has become less air tight and unequivocal over time than the nineteenth-century draftsmen had intended cannot be denied.").

248. *See supra* Part II.

249. *See id*.

disciplines can benefit from the other's lessons learned, mistakes made, and progress achieved.[250]

Both the creative process itself and the resulting creative productions have stressed copyright law in the twenty-first century to the point of breaking. With the increased prevalence of user-as-creator a.k.a. Cohen's "Romantic user," the role of collaboration and cumulative effort has increased in importance to the average end-user. Oftentimes the end-user becomes the creator of something new.[251] And, as noted in Part II, even the statutory definitions of collective work and joint work in the Act do not reflect reality. The current legal framework fails to embrace cumulative creativity as "progress," or to distinguish between the user who merely consumes for the sake of consumption and the user who consumes for the purpose of creating and participating in the cultural exchange.[252]

The confluence of various legal, technological, and contractual "fences" to restrict or altogether prevent access to protected works has led to a shrinking fair doctrine and public domain. The result? Valuable fundamentally fair uses in collaborative and cumulative creative mediums are at greater risk of being found infringing—namely, appropriation forms like music sampling, visual collage, and a host of creative endeavors on the worldwide web. I do not, however, advocate access as purely "user" convenience. Nor do I give a green light to mass infringement and uncompensated exploitation of the section 106 rights by the free-rider or pirate. I do offer, however, two tentative practical approaches and an aspirational one.

First, I suggest a judicial fix by aggressive policing of misuse. Second, I argue an interim legislative fix to expand the enumerated uses deemed fair to include something akin to a reverse engineering right or, in the alternative, to amend section 107 to provide expressly that fair use contemplates appropriative art forms as a productive use. Third, I assert that any piecemeal approach (as that just offered) is not ideal. The ideal is a *sui generis* hybrid regime consisting of elements of patent and copyright to apply to collaborative and cumulative artistic mediums—one that privileges access for purposes that reflect the original

250. Gregory Mandel writes: "For two doctrines that share such similar objectives, it is striking how little patent law and copyright cohere." Mandel, *supra* note 58, at 288. *See also* John Shepard Wiley, Jr., *Copyright at the School of Patent*, 58 U. CHI. L. REV. 119, 119 (1991).

251. *See* Cohen, *supra* note 19, at 5 (comparing and contrasting the 21st century end-users of copyright; namely the "romantic user" who copies intentionally to communicate a critical or parodic message and the "economic user" who engages in consumptive behavior and seeks to avoid paying for uses they believe should be free).

252. *See* Cohen, *supra* note 19.

constitutional call of progress, the true "end" intended to justify the monopolistic means.