Inventing Around Copyright[*]

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Introduction

Patent law has long harbored the concept of "inventing around," under which competitors to a patent holder may be expected, and even encouraged, to design their technologies so as to skirt the boundaries defined by patent claims. It has become increasingly clear that, for better or for worse, copyright also fosters inventing around. Unlike patent, copyright is not based on written claims, and so copyright inventing around does not involve skirting the edges of a particular intellectual property holder's right. Rather, because copyright links exclusive rights to technological actions such as reproduction, distribution, or transmission, the language of the copyright statute, and judicial readings of the statute, create boundaries around which potential infringers may technologically navigate.

Copyright and Technical Design

Several examples of this effect can readily be identified in the recent history surrounding the American copyright act. For example, thirteen years ago the United States Court of Appeals for the Ninth Circuit held the purveyors of the Napster peer-to-peer file sharing system to be contributorily and vicariously liable for copyright infringement.[1] This holding was based largely on the particular architecture of the Napster system. Peer-to-peer systems are denominated such because the individual computing devices participating in the system communicate directly with one another, rather than communicating through a central hub. However, the Napster system maintained a centralized database listing files resident on the system, which users could access to determine which files they wished to share or acquire. Because of the presence of this centralized feature, the court concluded that Napster had the ability to monitor both who was using its system and what was accessible by means of the system. Such knowledge is a key component to secondary copyright liability. Thus the architecture of the technology led inevitably to the finding of infringement.

Not surprisingly, the centralized features of the Napster system, on which secondary liability was premised, were absent from the next generation of peer-to-peer file sharing software.[2] Subsequent systems such as Grokster and KaZaa avoided any centralized monitoring or control point, adopting more fully distributed architectures that dispersed indexing as well as content and

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[1] A&M Records, Inc. *v*. Napster, Inc., 239 F.3d 1004 (2001).

[2] REBECCA GIBLIN, CODE WARS: 10 YEARS OF P2P SOFTWARE LITIGATION 29-33 (2011).

exchange among multiple network nodes.[3] This allowed the purveyors of the software, quite truthfully, to assert that they had no means of knowing who or what was on their system at any given time, so that they had no ability to monitor or control the use of the system, and hence could not be secondarily liable for infringing activity. Indeed, the United States Supreme Court acknowledged the success of this strategy by inventing and applying to Grokster a new form of secondary liability, inducement, which required no such knowledge or control, and so required no central feature to trigger secondary liability.[4]

Thus, Grokster and KaZaa intentionally attempted to design around the contours of technological liability as mapped out by the Ninth Circuit in the Napster decision. But this type of inventing around copyright is by no means unusual. It appears in the more recent *American Broadcasting Companies v. Aereo* controversy recently decided by the Supreme Court.[5] The Aereo storage and transmission technology at issue in the case was explicitly designed to conform to definitions of permissible activity articulated in previous copyright cases.[6] Specifically, the copyright statute grants copyright holders an exclusive right of public performance for their works. Previous court decisions held that an individually stored recording of a broadcast television show, accessed by a particular user at that user's discretion, did not constitute a public performance of the show, but was rather a private performance, outside the ambit of the copyright holder's exclusive right.[7]

Aereo built its service around technology meeting this definition of non-infringing private transmission.[8] The Aereo system is comprised of thousands of tiny antennae that receive broadcast programming. Each antenna is assigned to an individual subscriber, and either transmits the signal directly to that subscriber via Internet streaming media, or stores the broadcast in an individual recording accessible only to the particular subscriber. Thus, every step of the Aereo transmission is designed to permit only private performances, not public performances as defined by the courts, and so to skirt the rights of the copyright holder as articulated in previous copyright decisions.

A majority of the reviewing panel in Second Circuit court of appeals agreed that Aereo's set-up provided a private transmission, effectively skirting the statutory exclusive right for public performances.[9] Judge Chin in dissent asserted with some apparent outrage that the Aereo design was an "over-engineered" "Rube Goldberg" contraption, designed solely to avoid the letter of the copyright statute.[10] Chin observed that there was no particular reason to design the system with tiny individual receiving antennae except as a dodge around the public performance right; absent the previous definition of public performances, it might well have been more efficient to design a

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[3] *Id*. at 73-74; Lior Strahilevitz, *Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks*, 89 VA. L. REV. 505, 517 (2003).
[4] *MGM Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005).
[5] 2014 LEXIS 4496 (June 25, 2014).
[6] *See* Brian Funk, *Aereo: Yes we're a Rube Goldberg device. And we're proud of it*., Washington Post, March 27, 2014.
[7] *Cartoon Network, LP v. CSC Holdings, Inc*., 536 F.3d 121 (2d Cir. 2008).
[8] Cecelia Kang & Robert Barnes, *Supreme Court to decide on Aereo, an obscure start-up that could reshape the TV industry*. Washington Post, April 21, 2014.
[9] WNET v. Aereo, 712 F.3d 676 (2d Cir. 2013).
[10] *Id.* at 697 (Chin, J., dissenting).

service for streaming and recording broadcast with a single receiving antenna. The Supreme Court, in an opinion by Justice Breyer largely agreed, rejecting Aereo's "technological differences" as immaterial to the question of public performance.[11]

Inventing Around Patents

Yet, from the standpoint of intellectual property policy, this type of technical end-run is hauntingly familiar. A different branch of intellectual property law, patent law, has long entailed the policy justification of "inventing around," which is sometimes touted as one of the benefits of the patent system. Unlike copyright, the boundaries of the patent holder's rights are defined by textual claims in the patent document; infringement occurs in cases of unauthorized making, using, selling, offering for sale, or importing technology that falls within the claims.[12] Competitors to the patent holder may therefore invest in developing substitutes that fall outside the claims, which is to say in "inventing around" the obstacle of the patent right. Patents are intended to encourage innovation, and are usually assumed to do so via the reward of exclusive rights in a meritorious invention, but the "inventing around" rationale suggests that they may also somewhat perversely spur innovation as others seek permissible alternatives to the legally encumbered technology.

Thus, in the patent context, contrary to Judge Chin's views in copyright, a technological design that intentionally skirts the intellectual property holder's rights may be viewed as a proper or desirable response to the presence of exclusivity. The United States Court of Appeals for the Federal Circuit in particular has touted inventing around as a spur to innovation, suggesting that rights which might be viewed as impeding competitors actually force competitors to become more innovative in the course of avoiding infringement.[13] Patent law's Doctrine of Equivalents prevents trivial or obvious inventing around patent claims – under this doctrine, known substitutes or insubstantial variations on the claimed invention still fall within the ambit of the patent holder's rights.[14] Thus, in order to avoid infringement, inventing around patent claims will tend to require a substantial degree of innovation and the investment that goes along with this requirement.[15]

Inventing around in patent law is largely a result of textual formalism. Because the scope of patent rights is defined by written claims, determining the scope of the claims requires interpretation.[16] The settled first step in patent claim construction is deciding the literal meaning of the text, that is, assigning discrete denotations to words or phrases within the text.[17] This defines a conceptual boundary that determines not only what technology is covered by the patent, but also what technology is *not* covered by the patent. Technologies that lack each of the

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[11] 2014 LEXIS 4496 at 25-26.
[12] 35 U.S.C. § 271(a).
[13] *See, e.g.*, Yarway Corp. v Eur-Control USA, 775 F.2d 268, 277 (Fed. Cir. 1985); State Indus. v A.O. Smith Corp., 751 F.2d 1226, 1236 (Fed. Cir. 1985); Kimberly-Clark Corp. v Johnson & Johnson, 745 F.2d 1437 (Fed. Cir. 1984).
[14] London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538 (Fed. Cir. 1991).
[15] Paul N. Katz, *The Doctrine of Equivalents and Its Impact on "Designing Around,"* 4 FED. CIR. B.J. 315, (1994).
[16] *See* Dan L. Burk, *Dynamic Claim Interpretation* in INTELLECTUAL PROPERTY AND THE COMMON LAW 107 (Shyamkrishna Balganesh, ed., 2013) (discussing formalism in claims interpretation).
[17] *See* Autogiro Co. of Am. v. United States, 384 F.2d 391 (Ct. Cl. 1967) (explaining claims interpretation).

elements of the claims, or arrange components in some substantially different way, fall outside the formal denotation of the claims and so are not considered infringing. Competitors to the patent holder are considered perfectly justified in developing or adopting alternatives that lie outside the interpretive boundaries of the claims.

In copyright, it is either the statute itself, or a particular doctrine such as contributory infringement, rather than textual claims that lead to inventing around. In some cases of course, the patent statute may lend itself to inventing around – for example, a line of cases culminating in the current Supreme Court review of *Akamai v. Limelight* holds that for a process patent to be directly infringed under 35 U.S.C. 271(a), a single entity must perform or direct all the steps of the claimed process.[18] This might create an incentive for a potential infringer to innovate in such a way as to decouple steps in the process, so that the steps can be performed by different actors.[19] However, for the most part, this infringement loophole is likely to prompt business or logistical innovation rather than technical innovation. In general the patent statute sets broad criteria for patentability, which are then realized in specific patent claims, pushing the practice of inventing around to the level of the patent text, rather than to the level of the patent statute's text.

Unlike the patent statute, the copyright statute entails several features that foster statutory inventing around. First, copyright has evolved to place exclusive rights at the level of activities such as reproduction and distribution of copies, or transmission of performances, which are largely technological activities.[20] Copyright was classically intended as a *response* to technological discovery or progress. As new technology such as the printing press lowered the cost and speed of copying, prices fell, availability of content rose, and natural copy control by means of physical impediments deteriorated.[21] Legal exclusivity replaced some of the control that was lost due to more effective copying technology. As increasingly effective copying technology was developed and disseminated – offset lithography, xerography, digitization – legal exclusivity was called upon to fill a greater and greater gap between the initial cost of creation and the cost of subsequent dissemination.

Second, the copyright statute has been the site of repeated, ongoing, and frequent amendment to address technologically specific activities. This has largely been the result of legislative lobbying by established industries that are invested in a particular technology or associated business model.[22] Such amendments divide rights and responsibilities among stake holders, extend the exclusive rights granted by the statute, and sometimes create exceptions to or exemptions from existing exclusive rights. The amendments are typically couched in terms of the most contemporary technological threat to the hegemony of copyright holders. Radio, broadcast television, xerography, cable, digital transmission, and other communication technologies have all left their mark on the statute as Congress has responded to the demands of copyright holders, resulting in the cumulative, technologically defined amendment of the statute over time.

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[18] Limelight Networks, Inc. v. Akamai Techs., Inc., 2014 U.S. LEXIS 3817 (April 30, 2014).
[19] Mark A. Lemley et al. Divided Infringement Claims, 33 AIPLA Q.J. 255, 260 (2005).
[20] *See* 17 U.S.C. § 106 (listing the exclusive rights in copyright).
[21] PAUL GOLDSTEIN, COPYRIGHT'S HIGHWAY: FROM GUTENBERG TO THE CELESTIAL JUKEBOX (rev'd ed. 2003).
[22] JESSICA LITMAN, DIGITAL COPYRIGHT 22-24 (2001).

Legal Evasion and Technical Avoision

Such amendments provide fertile ground for inventing around, although they are themselves the product of a separate phenomenon. Copyright historians such as Jessica Litman have noted that communication technologies often thrive as an initial matter outside of the formal boundaries of copyright.[23] Such technologies begin and develop as media that are not contemplated or controlled by the copyright statute, but are eventually encompassed by amendments to the statute, producing an ever increasing statutory ambit of exclusivity. The copyright status of photography was initially uncertain, as it was unclear that the images captured on photographic plates were works of authorship rather than facts about the state of the world.[24] Later on motion pictures were registered with the Copyright Office as collections of still photographs until Congress added movies to the statute in 1912.[25] Sound recordings similarly began as a medium outside of copyright – the Supreme Court explicitly held that early sound recordings were mechanical devices and not copies for purposes of the statute; Congress subsequently added them to the statute as a new class of fixed works dubbed "phonorecords."[26]

Such historical examples are largely concerned with technologies that serendipitously grow beyond copyright's boundaries. Their history might be (and sometimes has been) taken as evidence that new technologies do better outside of copyright -- that only the technological seeds scattered outside of copyright's shadow receive enough sun and nourishment to flourish.[27] But here we are concerned with a related, though distinctly different phenomenon, in which innovators deliberately take the measure of copyright's zone of exclusivity and then purposely design new technologies that skirt that zone.

It might also be observed that versions of the "inventing around" effect are not limited to intellectual property rights, but might be seen generally in some form where human motivations and governmental regulation intersect: no doubt securities regulation leads to innovative derivative structuring intended to skirt the regulation, building codes lead to innovative architectural and construction practices intended to skirt the regulation, tax regulation leads to development of innovative tax shelters, and so on. However, these are primarily unintended consequences, and often constitute unwanted or even malicious exploitation of gaps in the law; the loopholes will be closed and the practice stamped out on the next round of regulation.

Timothy Wu has previously explored this aspect of technological design based on legal loopholes.[28] Wu argues that the response to legal constraints will take the form of least cost avoidance; if compliance with law is the least costly alternative, then compliance can be expected to occur. But depending on relative cost, reactions to law may take other forms, such as litigating or lobbying to change law, or re-structuring of business plans to exploit legal loopholes. This latter effect is a common occurrence in taxation or regulatory compliance, which

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[23] *Id.* at 106-07.
[24] *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53 (1884) (holding photographs to be copyrightable works of authorship).
[25] *Id.* at 41.
[26] *Id.* at 39; s*ee also* 17 U.S.C. § 101 (defining "phonorecords").
[27] *See* LITMAN, *supra* note 21 at 106-07.
[28] Timothy Wu, *When Code Isn't Law*, 89 VA. L. REV. 679 (2003).

Professor Katz dubbed "avoision," a portmanteau of "avoidance" and "evasion."[29] Taking a page from Larry Lessig's analysis of law and technology,[30] Wu observes that if formal law and technological constraint are at some level interchangeable, then avoision may occur by re-structuring technology rather than re-structuring behavior such restructuring is less costly than compliance.[31]

But this picture, while useful, may be incomplete. Technological avoidance may not necessarily be legal evasion, at least not in the sense identified by Wu. In the Federal Circuit's view of patent "inventing around," such activity does not constitute avoision, at least not as identified by Professor Wu, of a least cost avoider attempting to avoid or evade the intent of the law. To be certain, competitors to a patent holder who invent around are avoiding the alternative of infringement, and they will presumably do so only if inventing around is cheaper than the alternatives of being penalized for infringing or of licensing. But avoiding the boundaries of patent claims is not the same as avoiding the intent of the patent law. To the contrary, inventing around patent claims is instead considered a legitimate and desired response to the law; inventing around is if not *the* intended response to patent exclusivity, at least *an* intended response to patent exclusivity.

Racing and Rent Dissipation

However established inventing around may be in patent law, in both of the copyright examples I have mentioned – the *Grokster* decision and the more recent *Aereo* decision – the Supreme Court went out of its way to negate the strategy of designing around. The question then may be how desirable inventing around is as a policy matter, and whether that policy applies only to patents. The positive view of patent inventing around casts patent claims as a kind of innovation obstacle course, intended to build fitness and character in the competitors who are forced to navigate its hurdles. But this position on inventing around is itself controversial. Many commentators have been less enthusiastic about the concept, observing that inventing around patent rights may well lead to inefficient and duplicative invention by prompting development of unneeded or second best alternatives to patented technologies.[32]

As observed by Michael Abramowicz, inventing around is closely related to patent racing and the question of rent dissipation.[33] Inventing around may be regarded as a sort of patent race in which one of the parties has already won: rather than two innovators seeking to be the first to claim a patent, in inventing around the late coming competitor is left to develop a technological alternative to the patent that has been granted. Mark Lemley has recently argued that racing avoids the potential monopoly stagnation of placing a broad swath of innovation into the hands of a single patent owner; thus racing or inventing around provides alternatives to the patented

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[29] LEO KATZ, ILL-GOTTEN GAINS: EVASION, BLACKMAIL, FRAUD, AND KINDRED PUZZLES OF THE LAW 17-30 (1996)

[30] *See* LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (1999).

[31] Wu, *supra* note 27.

[32] Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813, 1869 (1984); FREDERIC M. SCHRER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 379-99 (1970); Donald F. Turner, *The Patent System and Competitive Policy*, 44 NYU L. REV. 449, 455 (1969).

[33] Michael B. Abramowicz, *Perfecting Patent Prizes*, 56 VAND. L. REV. 115 (2003).

technology, potentially fostering competition, which is itself valuable.[34] But the orthodox view of such races has been that both the private and social value of the patent might be overshadowed by expenditures to capture legal exclusivity.[35]

In this regard it is important to note that not only patent law -- and perhaps copyright law -- but trade secrecy, too, encourages a type of inventing around. The law of trade secrecy allows certain permissible activities that are considered proper means to obtain the secret: either reverse engineering or independent re-creation of proprietary information are allowed. These legitimate methods for capturing trade secrets serve to channel competitive activity away from wasteful investments in industrial espionage or employee enticement, and instead prompt investment in productive activity that builds the technical knowledge of the competitor.[36] The permissible modes of obtaining otherwise confidential information also place a natural cap on the cost of licensing a trade secret: trade secret licenses are always bargains for disclosure, and since reverse engineering or independent creation are available as alternatives to disclosure, the cost of disclosure will rationally be set at something a bit less than the cost of the alternatives.[37]

This view of trade secrecy suggests a similar construction of patent inventing around. Martin Adelman has argued that, much as in trade secrecy, patent inventing around is unlikely to occur unless the patent holder and the competitor have very different estimations of the cost of developing an alternative technology.[38] If the valuations of inventing around cost are similar, the parties are likely to be able to negotiate a royalty for use of the patented technology that will be lower than the cost of inventing around: the competitor will not wish to incur the inventing around cost if the royalty is cheaper, and the patent holder will set the royalty low enough to avoid inducing the competitor to invent around. Thus, when it occurs, inventing around a in some sense represents a bargaining breakdown.

Consequently, the positive view of inventing around requires a tricky allocation of economic surplus, as Suzanne Scotchmer famously observed, between the patent holder and the competitor.[39] Sufficient surplus from the social value of the follow-on innovation must be allocated to the initial innovator who obtains the patent, otherwise the patent holder may not be properly motivated to invest in the patented item. At the same time, enough surplus must be allocated to the follow-on competitor to ensure the necessary investment in inventing around, and private licensing may not accomplish this. This suggests that incentives for patent inventing around may be deficient; just as inventing around may be socially wasteful if the private value to the competitor exceeds the social benefit of having a new alternative technology, so *failure* to

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[34] Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709 (2005); *see also* Robert P. Merges, *Rent Control in the Patent District: Observations on the Grady-Alexander Thesis*, 78 VA. L. REV. 359 (1992) (cautioning that preventing rent dissipation could curb beneficial competition).

[35] *See* Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305 (1992).

[36] David D. Friedman, Richard M. Posner, & William A. Landes, *Some Economics of Trade Secret Law*, 5 J. ECON. PERSP. 61, 69 (1991).

[37] Edmund Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 279 (1977).

[38] Martin J. Adelman, *The Supreme Court, Market Structure, and Innovation*: Chakrabarty, Rohm and Haas, 27 ANTITRUST BULL. 457 (1982).

[39] Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and Patent Law*, 5 J. ECON. PERSP 29, 34-35 (1991).

invent around may be socially wasteful where the private value of the license to the patent owner exceeds the social benefit of having the new technology.

Secondary Racing

In copyright, unlike patent, there has been little analysis of the tendency to foster alternative technological development. Professor Abramowicz has analyzed copyright's adaptive right in terms of rent dissipation, much as he has examined inventing around in the patent context.[40] But the context of that analysis concerns, not inventing around copyright doctrine, but what one might call "creating around" the protected work itself: an attempt to develop a substitute for the copyrighted work. Copyright's doctrines of substantial similarity and derivative works police such creations. As in the case of patent law's Doctrine of Equivalents, copyright mimicry that skirts too close to the rights in the protected work will be penalized as an unauthorized adaptation, or as substantially reproducing the work, unless excused by one of the many statutory privileges and exemptions in that define the boundaries of the exclusive rights in the work.[41]

Such "creating around" the work is somewhat analogous to patent inventing around in that it attempts to develop a substitute for the particular subject of exclusivity; but as described above, it differs from patent inventing around in that it does *not* involve skirting the formal interpretation of a legal text.[42] Most significantly, it is not the situs for technological avoision of the kind we have seen in the cases of *Grokster* and *Aereo*. The Grokster and Aereo systems are not alternatives or substitutes for copyrighted works; they are alternatives or substitutes for, respectively, compact discs or for cable transmission – that is, for previous methods of *delivering* copyrighted works. The goal of a Grokster or Aereo designer is not to circumvent a particular copyright, but to avoid liability for provision of a *class* of copyrighted content. Typically the copyright holder involved in "creating around" will be fostering or developing content which may be carried by *means* of such new technological conduits.

Thus, in the case of copyright, the incentives entailed in inventing around are asymmetric: a given copyright holder is seldom in a race to develop the new delivery technology at issue, or for that matter any other technology; the development of peer-to-peer systems or Internet streaming services do not entail races between different copyright holders to obtain exclusive rights. Copyright inventing around, as described above, takes advantage of the technology specificity of the copyright statute: innovators design new technologies to avoid infringing the statutory rights tied to older technologies. The copyright holder, on the other hand, will tend to be invested in the existing technology that falls within the rights defined by the statute, or may possibly stand to benefit from extension of his rights to new technologies similarly falling within the statutory ambit. In fact the copyright holder often has little incentive to develop or encourage development of technologies outside those limits.

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[40] Michael B. Abramowicz, *A Theory of Copyright's Derivative Right and Related Rights*, 90 MINN. L. REV. 317 (2005).

[41] *See* Pamela Samuelson, *The Quest for A Sound Conception of Copyright's Derivative Work Right*, 101 GEO. L.J. 1505 (2013)

[42] *See* Burk, *supra* note 15 at 109-10 (noting that copyrighted works are not defined by claims, as are patented inventions).

This results in what might be termed secondary racing: unlike the paradigm in patent racing, the race in copyright is not a race for the exclusive intellectual property right. Rather, innovators are "racing" against either the established copying and distribution technologies, or against the technologies that might be preferred, endorsed, and licensed by copyright holders. What this shares with patent racing is the potential for copyright inventing around to be socially wasteful by channeling inventive effort toward new methods of reproduction or distribution when adequate methods are already available – this was in essence Judge Chin's complaint in *Aereo*.[43] But this effect is an ancillary function of the statutory parameters rather than the consequence of an individual grant of exclusive rights, which may give the content developer a degree of exclusivity over new technological conduits, either directly by virtue of statutory rights defined in terms of technology, or indirectly by virtue of secondary liability doctrines.

Consequently, to the extent that inventing around in copyright constitutes a bargaining breakdown, it is not the type of breakdown identified above in the patent context. Copyright holders and innovators do not have different valuations of the cost of licensing the existing intellectual property as against the cost of developing alternative intellectual property, as might be the case in patent inventing around. The question for the competitor in copyright inventing around is not whether to invest in a substitute movie or musical composition. Any disparity in valuation is rather more a comparison of apples to oranges; that is, comparing the cost of licensing the intellectual property versus developing an alternative technological delivery system.

This asymmetry between the alternatives becomes starker on closer examination. Because the alternative to inventing around in copyright is not the development of an alternative creative work, the licensing possibility involves the collective action problem of licensing not a particular copyrighted work, but the rights against secondary liability held by all copyright owners whose works might be infringed by the delivery under the current technology. As mentioned above, any given copyright holder has little incentive to develop or encourage development of technologies outside those limits. This combination of asymmetric incentives is therefore likely to make the redesign or inventing around option highly attractive to the secondary racer.

The question then is whether this incentive is socially perverse. We have said that copyright inventing around may be socially wasteful for channeling inventive effort toward new methods of reproduction or distribution when adequate methods are already available. The social desirability of such inventing around depends upon whether Judge Chin's assertions are correct – whether, for example, designing a technological alternative to public performance, using scores of dime-sized antennae, is an inefficient design intended only to circumvent some legal language, or whether it may instead constitute a useful innovation. In some cases, the latter may prove true; for example, the peer-to-peer architectures developed in the wake of the Napster ruling are may be useful for some applications and society is better off possessing the technology – at the time of this writing, Netflix appears to be considering such peer-to-peer systems as a

[43] *See supra* notes 9 - 10 and accompanying text.

better way to deliver authorized video content.[44] Such systems would not have been developed by copyright holders, and if they are socially valuable it is unclear why their development should not be promoted via "inventing around."

Conclusion

In general we do not think of copyright as a regime intended to foster technological innovation.[45] However, despite copyright's ostensible orientation toward promoting creative works by securing exclusive rights to authors, in fact copyright appears to also have a somewhat hidden hand in fostering or shaping certain technological progress. By siting the exclusive rights of copyright in technical actions, copyright law routinely promotes "inventing around," paralleling the more familiar inventing around doctrine in patent law; but copyright inventing around is concerned with global solutions for actions like reproduction or distribution, directed to classes of creative works, rather than to particular creative works. This fosters an asymmetry in the incentives of copyright holders and technical innovators, which may frame a more compelling policy argument for inventing around in copyright than is found in patent inventing around. Indeed, in its recent *Aereo* decision, the Supreme Court, while rejecting the particular design strategy adopted by the Aereo system, essentially invited or suggested other system designs that it hinted might pass legal muster.[46] If copyright is either unwittingly or explicitly shaping such technological endeavors, this effect requires closer consideration and more nuanced recognition, either as a policy goal or as a policy by-product, than Congress or the courts have granted it to date.

[44] Jon Brodkin, *Netflix researching "large-scale peer-to-peer technology" for streaming*, ArsTechnica, April 25, 2014 < http://arstechnica.com/information-technology/2014/04/netflix-researching-large-scale-peer-to-peer-technology-for-streaming/>.

[45] With of course the possible exception, the exception which prove the rule, of computer software, which remains problematic within the copyright regime precisely because it is technical rather than artistic subject matter. *See* Dan L. Burk, *Method and Madness in Copyright*, 2007 UTAH L. REV. 587, 613-14.

[46] 2014 LEXIS 4496 at 31-33.