
Improving Technology Neutrality Through Compulsory Licensing

Jake Linford[†]

In *Rethinking Technology Neutrality*,¹ Brad Greenberg raises the provocative possibility that the principle of technology neutrality embedded in the Copyright Act of 1976 aims at worthwhile goals, but actually stymies the achievement of those objectives. Greenberg posits that technology neutrality’s laudable dual purposes of future-proofing the Copyright Act and promoting equivalent treatment of old and new technologies vis-à-vis copyright liability are thwarted by four heretofore under-recognized problems. First, it is difficult to *predict* the costs of subjecting new tech to old copyright laws. Second, innovators face an unclear *penumbra* of protection that increases precisely because Congress will mistakenly assume tech neutral laws need no updating. Third, so-called neutral application likely varies depending on the *perspective* and approach of the judges that construe relevant statutory language. Fourth, technology neutrality may be little more than a *pretense* because so-called “neutrality” favors incumbents over innovators.

Greenberg argues that Congress should replace the expansive scope of technology neutrality with a broad right to economic exploitation of a copyrighted work in a variety of specific technology categories, which would improve technology tailoring of copyright law. As part of that change, Greenberg imagines an increased role for an administrative agency in updating the scope of copyright law. In addition, Greenberg’s reimagined copyright act would require a compulsory license for new technologies that do not fit within a specific technology category—a mandated midpoint between no-liability fair use and the business-ending injunctive relief that often

[†] Assistant Professor of Law, Florida State University. Copyright © 2016 by Jake Linford.

1. Brad A. Greenberg, *Rethinking Technology Neutrality*, 100 MINN. L. REV. 1495 (2016).

accompanies a property right.²

Even if Congress could be motivated to enact Greenberg's proposed changes, this shift to technology specificity and technological discrimination would not solve the identified problems as completely as he hopes. But his article points a way forward: courts can become more aware of the problems of technology neutrality and confront them more directly when assessing the scope of copyright protection against unauthorized uses via new technological interventions. Doing so may mitigate the current tendency to make every copyright lawsuit a fight about the transformative and disruptive nature of the technology at issue. In addition, when a useful new technology exploits copyrighted expression, courts might properly avoid the extremes of injunctive relief or no liability and instead award remedies like Greenberg's compulsory license.

I. RETHINKING TECHNOLOGY NEUTRALITY

Technology neutrality, simply stated, is an approach that regulates behavior rather than technology.³ In the context of the Copyright Act of 1976, technology neutrality is most clearly embodied in section 102(a),⁴ which states that copyright subsists in "any tangible medium of expression, now known or later developed."⁵ Technology neutrality also manifests in many of the Act's definitions,⁶ and in the rights granted to copyright

2. Cf. Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2009 (2007) ("In the real world, it is common for patent defendants to settle cases for more money than the patentee could have won in damages and license fees, simply to avoid the threat of an injunction shutting down the core product."); Abraham Bell & Gideon Parchomovsky, *Pliability Rules*, 101 MICH. L. REV. 1, 31 (2002) ("[T]he fair use doctrine in copyright law reduces the usual property rule protection to zero order liability protection where the use of the copyright entitlement constitutes a 'fair use.'").

3. Greenberg, *supra* note 1, at 1521.

4. *Id.* at 1515.

5. 17 U.S.C. § 102(a) (2012).

6. Greenberg, *supra* note 1, at 1515. See e.g., 17 U.S.C. § 101 (2012) ("To 'perform' a work means to recite, render, play, dance, or act it, either directly or by means of any device or process . . ."). See also *Copyright Law Revision: Hearings on H.R. 4347, H.R. 5680, H.R. 6381, and H.R. 6835 Before the Subcomm. on Courts, Civil Liberties & the Admin. of Justice of the H. Comm. on the Judiciary*, 89th Cong. 32–33 (1965) (noting that the Act adopts technology neutral definitions to avoid "confining the scope of an author's rights on the basis of present technology").

owners.⁷ As Greenberg explains, both the text and context of the Copyright Act suggest that Congress intended to enact legislation that reaches infringing activity whether or not Congress could have contemplated the technology used to infringe when it drafted the statute.⁸

Technology neutrality is often touted as good policy.⁹ Advocates of technology neutrality in copyright law emphasize that a technology neutral statute should be somewhat future proof—adaptable to new technologies even if the enacting Congress couldn't hazard a guess at what those technologies might be. Congress thus seems to have collectively presumed that a technology neutral statute would need less frequent updating than a technology specific statute.¹⁰ In addition, a technology neutral statute should be applied evenly to equivalent technologies (or perhaps across the board to all technologies). Even-handed application seems, at least on the surface, more equitable than other options.

But Greenberg takes a deep look at technology neutrality as it operates in the Copyright Act and does not like what he sees. In fact, Greenberg proposes that future proofing might not always be desirable.¹¹ A future proof statute sets a normative baseline, but norms can shift. If current norms have moved away from the norms embodied in the statute, then technology neutrality may cause a problematic normative lock-in.

In addition, Greenberg argues that true technology neutrality might be unobtainable for four interlocking reasons. First, a technology neutral regime commits to treat new

7. Greenberg, *supra* note 1, at 1515. See e.g., H.R. REP. NO. 94-1476, at 63 (1976) (explaining how the author's exclusive right, under 17 U.S.C. § 106(4), to perform or transmit a work publicly, can occur by means of devices "not yet in use or even invented").

8. Greenberg, *supra* note 1, at 1514–18. See also e.g., H.R. REP. NO. 94-1476, at 52 (1976) (noting that technology neutrality was adopted to "avoid the artificial and largely unjustifiable distinctions . . . under which statutory copyrightability in certain cases has been made to depend upon the form or medium in which the work is fixed"); *id.* at 53 (explaining that if the work of authorship is a "literary work," the copies or phonorecords could take any form, "including books, periodicals, computer punch cards, microfilm, tape recordings, and so forth").

9. Carys J. Craig, *Technological Neutrality: (Pre)Serving the Purposes of Copyright Law*, in THE COPYRIGHT PENTAGONY: HOW THE SUPREME COURT OF CANADA SHOOK THE FOUNDATIONS OF CANADIAN COPYRIGHT 271, 272–73 (Geist ed., 2013) (summarizing arguments in favor of technology neutrality).

10. See *supra* note 8 and accompanying text.

11. See Greenberg, *supra* note 1, at 1523.

technologies as subject to copyright even though Congress likely fails to *predict* the cost of extending protection in this way. Technology neutrality may cause courts to treat substantively different technologies as alike, even though new technologies might be less analogous to old technologies than they initially appear. For example, a new technology might impose lower costs on copyright owners and provide greater benefits to consumers than older technologies it resembles.¹² Indeed, copyright owners are often criticized for short-sightedness in opposing the use of copyrighted works in new technologies.¹³ Applying copyright liability to a new technology might therefore impose a higher-than-predicted cost on innovators and consumers.¹⁴

Second, a technology neutral regime has fuzzy boundaries—a *penumbra* where interpretation is most difficult because it is unclear whether the law should apply.¹⁵ For technology neutral laws, the fuzzy part of the boundary may be particularly broad. But because technology neutrality supposedly prevents the need for frequent updating, technologists and copyright owners may spend too long litigating cases in the twilight of the Copyright Act's useful life.¹⁶

Third, technology neutrality may be in the eye of the beholder. Greenberg observes courts often replace the technology neutral framework that Congress enacted with a technology specific calculus. For instance, while Napster, Aimster, and Grokster all provided users with the means to download music without paying copyright owners, courts looked beyond the similarities in those systems and found different bases for liability, in part because differences in design persuaded the courts that different legal doctrines must apply.¹⁷ The breadth of technology neutrality may thus leave parties in the uncomfortable position of not knowing how a case

12. *Id.* at 1510, 1523.

13. *See, e.g.*, Jessica Litman, *The Story of Sony v. Universal Studios: Mary Poppins Meets the Boston Strangler*, in *INTELLECTUAL PROPERTY STORIES* 358, 383 (Jane C. Ginsburg & Rochelle C. Dreyfuss eds., 2006) (despite opposing the Sony Betamax, “the motion picture industry grew to rely on the pre-recorded videocassette market as a significant source of its income”).

14. Greenberg, *supra* note 1, at 1524–29, 1546.

15. *Id.* at 1529 (citing H.L.A. Hart, *Positivism and the Separation of Law and Morals*, 71 *HARV. L. REV.* 593, 607–08 (1958)).

16. *Id.* at 1529–36.

17. *Id.* at 1540–42.

will turn out because the outcome will often depend on the *perspective* of the members of the court, and their sometimes disparate approaches when analogizing new technologies to old.¹⁸

Fourth, if one thinks of neutrality as providing equal opportunities for business models built on new and old technologies to make productive use of copyrighted expression, neutrality may only be a *pretense*. Technology neutrality is not value neutral; the presumption that copyright should extend to new business models may overprotect incumbent business models built on old technology, discriminate against new technology, and prevent useful competition by new entrants.¹⁹

If Greenberg is correct, true technology neutrality is effectively unobtainable. And when technology neutrality fails, interested parties successfully petition Congress for technology specific provisions that undermine the technology neutral framework on which our copyright laws supposedly depend. Those technology specific provisions are often thorny and impenetrable, helpful only to the interested parties who lobbied for them, and useless for updating the law.²⁰ So technology neutrality is likely to fail, and its failure is likely to produce the worst possible instances of technology specificity.

Given the flaws Greenberg perceives with technology neutrality, he proposes that we abandon the formalism of technology neutrality in order to receive the benefits it purports to give us. To that end, he argues that Congress should rewrite the Copyright Act with an eye toward a form of technology specificity he calls technological discrimination.²¹ Greenberg's technological discrimination is a hybrid between technology neutrality and technology specificity, which he sees as antipodal extremes at the ends of a spectrum of policy options. Instead of granting exclusive rights to authors to copy, distribute, adapt, and publicly perform and display copyrighted works in any medium or through any technology,²² Greenberg envisions a revised copyright act that would grant an "exclusive

18. *Id.* at 1536–43.

19. *Id.* at 1543–46.

20. *Id.* at 1516 (discussing 17 U.S.C. § 111 (2012), a compulsory license for cable retransmission that is available only to technologies that fit within its narrow definitions).

21. *Id.* at 1548.

22. Those are the exclusive rights currently extended to copyright owners. 17 U.S.C. § 106 (2012).

right to exploitation of the copyrighted work in [specific] covered technologies.”²³ Covered technologies would be those substantively equivalent to technologies in defined statutory categories. For example, the proposed revision would protect a right to exploit the work using technology substantively equivalent to devices currently used “for recording audiovisual works, like video cassette recorders or cameras”; or “devices for communicating audiovisual works to the public, like broadcast or cable transmission technologies.”²⁴ This technological discrimination approach would encourage courts to consider the costs and benefits of extending the scope of copyright protection to new technologies.

In addition, Congress would task administrative experts with determining whether or not a new, potentially infringing technology is equivalent to a defined technological category. Greenberg imagines that in many cases, copyright protection would extend to the new technology. Furthermore, in most cases where a new technology doesn’t fit into a specified category, the technologist would pay a compulsory license, set by the same administrative agency. This license would provide a revenue stream to an injured copyright owner, but forestall the owner from shutting down a new technology or demanding its preferred licensing rate. Greenberg posits these changes would improve technology tailoring in copyright law.

Greenberg is mostly right. Technology neutrality has significant limitations, and courts should directly confront them when resolving disputes over alleged infringement enabled by new technology. But unfortunately, even if Congress could be persuaded to enact the aforementioned proposals, moving to a more technology specific copyright act would fail to correct many of the problems that Greenberg attributes to technology neutrality. However, as this response argues briefly below, courts could be bolder in applying something like Greenberg’s compulsory license at the remedies phase.

II. THE PROBLEMS WITH TECHNOLOGY SPECIFICITY

This Part summarizes Greenberg’s important insights about four critical problems with technology neutrality—prediction, penumbra, perspective, and pretense. Unfortunately, Greenberg’s proposed technological

23. Greenberg, *supra* note 1, at 1549.

24. *Id.*

discrimination regime would not mitigate these problems as effectively as he hopes. Greenberg is correct that Congress struggles to predict the cost of treating new technologies like existing technology. But a statutory shift from behavior-based exclusive rights regardless of technology to a general right of economic exploitation in narrow technological categories threatens to preserve the technological mindset embedded in the Act without correcting the mismatch between technological similarity and technological cost.

His proposal similarly trades the problem of penumbra—fuzziness at the edge of the statutory boundary—for a plethora of penumbræ. Providing narrow technology-based protections may encourage subsequent redrafting by Congress, but courts will face difficult interpretive challenges when comparing a new technology to multiple potentially relevant technology categories irrespective of how often Congress updates them.

Likewise, Greenberg notes that judicial decisions frequently turn on whether the court focuses on the structure of the allegedly infringing technology, or its output. The proposed statutory fix doesn't directly address this problem of perspective. It merely shifts the costs from courts to Congress or administrators.

Finally, Greenberg correctly identifies that technology neutrality is not value neutral. Indeed, treating new technology like old technology may discriminate against subsequent innovations. But this deliberate policy choice is not a pretense; neutral applicability of the statute to old and new technology is consistent with Congressional intent, and within the scope of the legislature's constitutional authority as the Supreme Court defines it.

A. PREDICTION AND THE "TECHNOLOGICAL MINDSET"

As Greenberg reminds us, experts are terrible at predicting the next big thing.²⁵ For example, the Internet has proven to be a transformative communications technology, but it was first envisioned as a way to remotely share processing power from idle computers.²⁶ Congress is likely much less capable of correctly predicting the future. The difficulty of prediction motivates technology neutrality. A technology neutral statute

25. *Id.* at 1525.

26. *See, e.g.*, MICHAEL BANKS, ON THE WAY TO THE WEB: THE SECRET HISTORY OF THE INTERNET AND ITS FOUNDERS 181 (2012).

is drafted broadly because it is hard to imagine what the next generation of technologies might look like. The current Copyright Act deals with the predictive failure by not dealing with it. Instead, the Act is presumed to govern uses of the copyrighted work in new technologies, “whether now known or later developed.”²⁷

But Greenberg notes a second level of predictive failure. Congress is like the farmer who can imagine a sharper plow—a linear development from known technology—but not a technological discontinuity like the combustion engine.²⁸ The Internet is another technological discontinuity likely unimaginable when the Copyright Act of 1976 was drafted and enacted. The printing (or pressing) and distribution of bootleg books or vinyl albums is not analogous to how information is transmitted and used over the Internet; neither is a radio or television broadcast. Greenberg thus observes that Congress is not only incapable of predicting what technologies are beyond the horizon, but it cannot know whether applying copyright law to these new technologies “will promote—or undermine—the law’s policy goals.”²⁹ A technology specific Copyright Act might ameliorate that limitation by requiring more frequent updating, which could encourage or even require Congress to consider these questions on a more regular basis.³⁰

Indeed, Greenberg locates some of the problem of prediction in the exclusive 106 rights themselves.³¹ Exclusive rights to copy, adapt, distribute, and publicly perform and display a copyrighted work presume technologically specific boundaries between the rights. But new technologies collapse the borders between rights.³² And litigating one of the 106

27. 17 U.S.C. § 102(a) (2012).

28. Greenberg, *supra* note 1, at 1527.

29. *Id.* at 1526.

30. See, e.g., Hon. M. Margaret McKeown, *Happy Birthday Statute of Anne: The Dance Between the Courts and Congress*, 25 BERKELEY TECH. L.J. 1145, 1152–53 (2010) (describing how narrow judicial opinions may prompt Congress to update the Copyright Act). Congress, however, will sometimes defer to the courts on just these types of questions. For example, Congress contemplated revising the Copyright Act to legalize home video recording, but instead waited for the Supreme Court’s opinion in *Sony v. Universal*. Litman, *supra* note 13, at 365–66 (citing H.R. 5488, 97th Cong. (1982); S. Amdt. 1242 to S. 1758, 97th Cong. (1981); H.R. 5705, 97th Cong. (1982); S. Amdt. 1333 to S. 1758, 97th Cong. (1982)).

31. Greenberg, *supra* note 1, at 1528.

32. *Id.* (quoting *United States v. Am. Soc’y of Composers, Authors and Publishers*, 627 F.3d 64, 74 n.10 (2d Cir. 2010) (“[U]nder certain circumstances

rights without discussing any of the others might “invite[] technological manipulation designed to skirt liability while engaging in practices that do not conform to the spirit of the law.”³³ This “technological mindset,” anchoring the technology neutrality in the current act to old technologies, threatens to leave infringement through “substantively equivalent technologies and business models” unremedied.³⁴

Unfortunately, Greenberg’s proposed statutory revision—protecting the right of copyright owners to economic exploitation of the work in covered technologies—does not move copyright law away from the technological mindset. Indeed, explicitly anchoring scope of protection to narrowly defined technology categories may embed the technological mindset more deeply into the copyright regime. In addition, building a regime that relies on frequent updating will likely increase the risk faced by copyright holders who may find themselves waiting on an administrative agency for confirmation that they have a right deserving a remedy.³⁵

B. A PLETHORA OF PENUMBRAE

Greenberg also explains how technology neutrality can exacerbate a different sort of interpretive problem. H.L.A. Hart offered a famous hypothetical illustrating the difficulty of construing statutory language: how should one interpret the term “vehicles” in a statute, “no vehicles in the park.” Construing the term broadly might ban ambulances, which one might prefer to enter the park, at least during emergencies;³⁶ or baby strollers, which might not have fallen within legislative intent, but might nevertheless count as vehicles.³⁷ The difficulty with narrowing the definition is that the simple statutory language provides no hints for how to do so. The interpreter must turn to other information, including intuitions about what vehicle might mean, historical context of the park

. . . a transmission could constitute both a stream and a download, each of which implicates a different right of the copyright holder.”)).

33. Greenberg, *supra* note 1, at 1529.

34. *Id.* at 1528.

35. *Cf.* Jake Linford, *A Second Look at the Right of First Publication*, 58 J. COPYRIGHT SOC’Y U.S.A. 585, 587 (2011) [hereinafter Linford, *First Publication*] (describing how new technologies can dramatically shift risks of infringement and enable market-decimating exploitation of copyrighted expression).

36. Greenberg, *supra* note 1, at 1529–30.

37. *Id.* at 1530.

and “vehicle” use therein, and legislative history.

Hart posited that interpretive questions are most difficult at the penumbra—those cases where the connection between the term of art (“vehicle”) and the regulated thing or behavior (strollers) are not so tenuous as to be easily dismissed, but not so clear as to be readily embraced. Greenberg argues that technology neutrality exacerbates this problem because the penumbra around technology neutral language expands as the law ages.³⁸ He posits this expansion occurs for two reasons. I address them here in reverse order. First, technology neutral drafting creates the illusion that the law can survive with less frequent updates. Greenberg posits this illusion of adaptability will lead to ossification, because legislators mistakenly conclude the law is relatively future-proof. Thus, corrections will happen in a piecemeal fashion, rather than holistically.³⁹ A technology specific statute might prevent some ossification because Congress cannot be easily persuaded that a technology specific statute can carry on without frequent updating.⁴⁰

Second, compared to a technology specific provision, a technology neutral law must speak in broad generalities. A general statute like “no vehicles in the park” must be reinterpreted as new vehicle-like technologies like the Segway or the drone are invented. Statutory interpretation in the penumbra is difficult and prone to error. Greenberg argues that a technology specific statute, like “no skateboards in the park,” provides more clarity about its intended boundaries, potentially reducing the scope of the penumbra.⁴¹

The problem of the penumbra presented itself in the recent litigation over the Aereo business model. Aereo retransmitted broadcast television signals to customers, a business model that looks much like the cable model that Congress subjected to a compulsory license.⁴² But Aereo sought to work around copyright liability by using a bank of tiny antennae to capture individual signals for individual subscribers. The redundancy

38. *Id.*

39. *Id.* at 1531.

40. *Id.*

41. *Id.* at 1530.

42. 17 U.S.C. § 111 (2012). Under that compulsory license, the owners of copyright cannot prohibit cable operators from retransmitting on-the-air broadcasts, but the cable operators must observe certain formalities and pay a government specified royalty.

was designed to circumvent the public performance right.⁴³ When broadcasters sued to block Aereo, courts struggled with broad definitions of “the public” and “transmission” in the Copyright Act. Greenberg argues that new technologies like Aereo’s antenna bank “enlarge the area of uncertainty by creating questions that legislators did not imagine were technologically possible.”⁴⁴

Greenberg worries that in a technology neutral regime, the penumbra will expand as technology develops, but technology specific statutes are not immune to this pressure. Returning to his example of “no skateboards in the park,” consider whether a Segway is close enough to a skateboard to fit within its penumbra, or whether something like the Hoverboard from *Back to the Future* counts as a skateboard.⁴⁵ Likewise, instead of deciding whether a technology infringes the exclusive right to make copies, courts would be tasked with deciding whether a new technology is similar enough to one of several defined technological categories that its use of a copyrighted work infringes the owner’s exclusive right to economic exploitation. Indeed, technology specificity may replace one penumbra with a plethora of penumbrae. Instead of dealing with a large band of uncertainty around technology neutral provisions, courts will be tasked with understanding gaps between specific technology categories and determining whether a new technology maps onto one category or another. In both cases, courts are on the horns of the same dilemma: does the current statute cover the new technology? Thus, technology specific statutes do not solve the problem of penumbra.

C. PERCEPTIONS OF PERSPECTIVE

Greenberg returns to the *Aereo* case to highlight what he calls the problem of *perspective*: when a court considers a technology deep within the penumbra, one that Congress could not have predicted, the perspective of the court about the technology may take an oversized role. Courts might look to the structure or operation of new technology, or they might look to the output or commercial function of the technology. Those

43. See *Am. Broad. Cos. v. Aereo, Inc.* 134 S. Ct. 2498 (2014); Greenberg, *supra* note 1 at 1530–31.

44. Greenberg, *supra* note 1, at 1531.

45. BACK TO THE FUTURE PART II (Universal Pictures 1989). One company now offers a hoverboard that will hover an inch off the ground. See HENDO HOVER, <http://www.hendohover.com> (last visited Aug. 8, 2016).

distinctly different frames of reference can drive litigation outcomes.⁴⁶

For example, in *Aereo*, a majority of justices joined Justice Breyer in concluding that Aereo infringed the public performance right in the copyrighted works it retransmitted. In so concluding, Justice Breyer looked past the structure of the antenna set up, concluding that Aereo had the same “commercial objectives” as cable companies, and consumers had effectively the same experience as cable customers.⁴⁷ From Justice Breyer’s perspective, the output of the Aereo system was just like the output of a cable system. Thus, the Copyright Act applied to Aereo’s transmission.

Justice Scalia saw things differently. His dissenting opinion took a structural perspective. The structure of the antenna system, with each subscriber receiving a signal from an assigned antenna, moved Aereo out of a public performance, because the transmission was one-to-one. This structural perspective led Scalia to conclude that consumers, rather than Aereo, transmitted the performance.⁴⁸

Greenberg argues that the Act’s technology neutrality makes the distinction between structure and output too important. Greenberg amasses significant evidence that Congress likely intended courts to apply a behaviorist, output-focused perspective, although the statutory language does not explicitly address the issue of perspective.⁴⁹ But he acknowledges that while more specificity about the proper frame of reference could mitigate the problem of perspective, the problem would persist.⁵⁰

In addition, Greenberg perceives the 106 rights as contributing to the problem of perspective. Those rights—copying, creating derivative works, distributing copies, and performing and displaying publicly—embed a then-contemporary understanding of how authors and owners might exploit their copyright. Gaps in coverage between 106 rights become apparent as new technologies arise because those 106 rights are anchored in old technologies. Aereo’s exploited new technology and an old understanding of signal reception to

46. Greenberg, *supra* note 1, at 1537.

47. *Aereo*, 134 S. Ct. at 2508.

48. *Id.* at 2514 (Scalia, J., dissenting) (“In sum, Aereo does not ‘perform’ for the sole and simple reason that it does not make the choice of content.”).

49. Greenberg, *supra* note 1, at 1542.

50. *Id.*

build a business model that skirted the edges of copying and performance, fitting squarely into neither concept and thus potentially infringing neither right.⁵¹

Unfortunately, replacing a technology neutral inquiry into infringing activities with a technology specific inquiry into whether the defendant infringes an exclusive right to “economic exploitation” of a covered technology or its close equivalents doesn’t cleanly solve this problem. The problem of perspective would persist in a technology specific statutory regime as well. Questions of structure versus output would linger. A statute that secures the right to economic exploitation in a covered category like devices for recording audiovisual works such as video recorders or cameras, would still leave courts with a choice between a structural inspection of the internal workings of the new technology and a behavioral examination of the allegedly infringing output. And Greenberg’s proposed revision, which extends exclusive rights to exploit the copyrighted work in covered technologies and those “substantially equivalent” to those covered,⁵² provides no guidance on whether to apply a structural or behavioral perspective in discerning substantial equivalence.

D. PRETENSE AND PHRASEOLOGY

Greenberg’s final problem with technology neutrality is that its neutrality may be a pretense. Technology neutrality is shaped by social and political context, and requires a decision in the first instance about which technologies and rights set the purportedly neutral baseline. Extending copyright law to new technologies is thus not a value neutral proposition. Setting any statutory baseline requires making value judgments as part of that process. Nevertheless, while it is crucial to recognize the values baked into technology neutrality, those determinations do not strip technology neutrality of its equal application.

Greenberg is correct to highlight the mismatch between value neutrality and technology neutrality, but to presume value neutrality from technology neutrality is the fundamental error. As Greenberg’s summary of the legislative history explains, Congress intended to make a broadly applicable copyright law that would reach new technology. The decision is

51. *Id.* at 1538–39.

52. *Id.* at 1549.

not value neutral, but it is neutral in the sense that it applies equally to every technology, if that technology is used to infringe one of the exclusive rights granted to the copyright owner. This neutral applicability was not accidental, although there are public policy reasons to wonder whether the choice was well-taken.⁵³

In addition, a counter-factual regime in which Congress eschewed neutral applicability would be equally value laden, and likely aimed at a different goal than the goal animating the technology neutral provisions of the 1976 Act. If copyright owners were required to petition Congress or an agency to reach any new infringing technology, the law would discriminate against IP owners, against standing business models, and against prior technologists who may have paid to play.⁵⁴

More generally, it is not clear that Greenberg's critique is specific to technology neutrality. It rather aims at a prior question—what is the scope of Congress's authority to set copyright law's policy goals? If, as Greenberg teaches us, Congress intended to draft an act that takes as its default extending copyright protection to reach infringing activity implemented through new technology, then technology neutrality may promote the goal. At a minimum, it may not be an unintended consequence.⁵⁵

Should Congress be empowered to decide which policy goals to aim for with the scope of copyright protection? The Supreme Court deflected two recent challenges to Congressional authority to extend the duration of copyright

53. See, e.g., Shyamkrishna Balganesh, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569, 1589–91 (2009) (arguing that content owners “clearly are not best positioned to develop” new markets for existing works); Greenberg, *supra* note 1, at 1545 (arguing that “technology neutrality entangles granting authors exclusive control over exploitation of their work with protecting existing markets from new markets of exploitation [which] imposes social costs without necessarily conferring benefits to authors”).

54. Linford, *First Publication*, *supra* note 35, at 623 (observing that a policy of denying rights incidental to those rights that directly incentivized the creation of copyrightable expression would “at its extreme . . . lead to a string of property rights derived from the same underlying creative act scattered among successive technological innovators”).

55. *Id.* at 629–32 (explaining how Congress imported from the common law right of first publication—and the Court affirmed—a right of market entry broad enough to allow a copyright owner to decide if and when to have its work exploited in a given medium).

protection,⁵⁶ and to the renewal of protection to copyrighted works for which protection had expired due to a failure to observe formalities, among other reasons.⁵⁷ Scholars have argued there should be some limit on Congressional authority in these contexts.⁵⁸ But the Supreme Court has articulated only three limits on copyright protection that Congress may not alter: the idea-expression line that bars extending copyright protection to ideas;⁵⁹ protection from liability for fair uses;⁶⁰ and eventual expiration of copyright protection.⁶¹ Technology neutrality's purported problem of pretense crosses none of those impermeable thresholds. Greenberg provides a strong argument for why we could construe technology neutrality as bad policy, but not as constitutionally impermissible. Congress is allowed to select a statutory regime, even if it is unfortunately short-sighted.⁶²

D. TAKEAWAYS

What should we take from Greenberg's description of the

56. *Eldred v. Ashcroft*, 537 U.S. 186, 222 (2003) (“Beneath the facade of their inventive constitutional interpretation, petitioners forcefully urge that Congress pursued very bad policy in prescribing the CTEA’s long terms. The wisdom of Congress’ action, however, is not within our province to second-guess.”).

57. *Golan v. Holder*, 132 S. Ct. 873, 878 (2012) (“Neither the Copyright and Patent Clause nor the First Amendment, we hold, makes the public domain, in any and all cases, a territory that works may never exit.”).

58. See, e.g., Jake Linford, *The Institutional Progress Clause*, 16 VAND. J. ENT. & TECH. L. 533, 559 (2014) [hereinafter Linford, *Progress Clause*].

59. *Id.* at 559 (“[T]he Progress Clause builds in a natural limit recognized by the courts, as articulated in the idea-expression dichotomy.”).

60. *Eldred*, 537 U.S. at 219–20 (2003) (“[C]opyright law contains built-in First Amendment accommodations” allowing free use of ideas and providing a fair use defense, which “affords considerable latitude for scholarship and comment”) (quoting *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 560 (1985)). Cf. Neil Weinstock Netanel, *First Amendment Constraints on Copyright After Golan v. Holder*, 60 UCLA L. REV. 1082, 1103 (2013) (arguing that although the opinion in *Golan* narrowly defines the traditional contours of copyright protection, it nevertheless “fortifies and gives First Amendment import to the idea/expression dichotomy and the fair use defense”).

61. *Dastar Corp. v. Twentieth Century Fox Film Corp.*, 539 U.S. 23, 37 (2003) (noting that Congress may not “create[] a species of perpetual patent [or] copyright”).

62. Jessica W. Rice, Note, “*The Devil Take the Hindmost*”: *Copyright’s Freedom from Constitutional Constraints After Golan v. Holder*, 161 U. PA. L. REV. ONLINE 283, 298–300 (2013) (stating *Golan* “has issued so broad a license to Congress that ostensibly there remain no principled constitutional safeguards against the public domain’s continued erosion”).

problems of technology neutrality? First, these problems are a subset of a problem courts face in almost every case, whether the law to be applied is common law or statutory. Courts must reason by analogy, for instance, in determining whether *Aereo*'s use of copyrighted works is like the use made by cable companies, or like the use of a photocopy machine. And of course, when a court faces a new technology, decisions made by the Supreme Court in *Aereo* will be among the inputs that help the court determine whether copyright protection reaches uses of a work by the new technology (whether that technology is cloud computing or something else). The common law process of reasoning by analogy may or may not lead to efficient outcomes in the long run.⁶³ But it is an established part of the American legal system.

Second, technology neutrality might lead Congress to think it need not amend the Copyright Act, perhaps because it assumes courts can reason by analogy as well in these technological contexts as in many others. Here, Greenberg weakens his own narrative by noting the frequency with which IP-creating industries have successfully obtained technology specific provisions.⁶⁴ Those technology specific provisions, however, are often challenging to comprehend, and so narrowly tailored that even if they were comprehensible, they provide almost no guidance in determining liability for infringement through subsequent technological innovations. One might therefore reasonably question the benefit of more frequent updating.

In addition, Greenberg is aware of the easiest criticism of his proposed statutory reform: Congress can be difficult to motivate at the best of times, and right now, copyright reform is toxic.⁶⁵ The last attempt by copyright owners to expand the scope of protection was met with significant public hostility.⁶⁶

63. Compare e.g., RICHARD A. POSNER, *ECONOMIC ANALYSIS OF THE LAW* (7th ed. 2007) (proposing that the common law is efficient), with DAVID A. FRIEDMAN, *LAW'S ORDER* 298–99 (2000) (questioning that claim).

64. See, e.g., Greenberg, *supra* note 1, at 1520.

65. See, e.g., Margot E. Kaminski, *The Capture of International Intellectual Property Law Through the U.S. Trade Regime*, 87 S. CAL. L. REV. 977, 1045 (2014) (“Intellectual property enforcement is, [post failed reform], a toxic topic in Washington.”); Hayden W. Gregory, *The Next Great Copyright Act?*, 7 LANDSLIDE 2, 59 (2014) (“[F]or several key copyright leaders in Congress, the recent catastrophic collapse of . . . legislation aimed at off-shore online piracy loomed as a disincentive to taking on bold new initiatives.”).

66. Linford, *Progress Clause*, *supra* note 58, at 581 (2013) (“While the

And while the Copyright Office has begun the process of imagining “The Next Great Copyright Act,”⁶⁷ nothing like Greenberg’s technological discrimination regime is dreamed of in the current slate of proposals. We are in for a long wait if we must wait for Congress to fix the problems with technology neutrality.

Third, Greenberg worries that the law doesn’t tailor well because there is no institution to which the role of tailoring has been delegated. That’s not entirely true either. For better or worse, Congress designated itself the institution responsible for making wholesale revisions to the Act, and that’s a role the Supreme Court has provided wide latitude for Congress to inhabit.⁶⁸ Greenberg has a different take on proper institutional roles—he proposes a more active role for agencies, making judgments about whether new technology is subject to the reach of the current version of the Act.⁶⁹

Furthermore, agencies are already empowered to shape copyright law by managing compulsory damage regimes and crafting exceptions to liability for circumventing technological protection measures or trafficking in technology that circumvents those measures. From the view of some interest groups, the process leaves much to be desired.⁷⁰ But Greenberg is correct that an administrative agency at its worse might be quicker than Congress at its best.⁷¹ He also correctly notes

public response [against recent proposed expansions to the copyright protection] was certainly encouraged by ISPs and intermediaries who viewed it as a threat to the operation of the Internet, it was the public response, not the centralized opposition, that sent legislators of all political stripes scurrying to distance themselves from the bill.”); Annemarie Bridy, *Copyright Policymaking as Procedural Democratic Process: A Discourse-Theoretic Perspective on ACTA, SOPA, and PIPA*, 30 CARDOZO ARTS & ENT. L.J. 153, 159 (2012) (detailing the public outcry in response to those proposed expansions).

67. Maria A. Pallante, *The Next Great Copyright Act*, 36 COLUM. J.L. & ARTS 315 (2013).

68. See *supra* notes 56–60 and accompanying text. See also *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 456 (1984) (“It may well be that Congress will take a fresh look at this new technology, just as it so often has examined other innovations in the past. But it is not our job to apply laws that have not yet been written.”).

69. Greenberg, *supra* note 1, at 1550, 1553–55.

70. See, e.g., Statement of Maria A. Pallante, U.S. Register of Copyrights and Dir. of the U.S. Copyright Office, before the H. Comm. on the Judiciary, *The Register’s Perspective on Copyright Review*, 1, 21 (Apr. 29, 2015), <http://copyright.gov/laws/testimonies/042915-testimony-pallante.pdf>.

71. Greenberg, *supra* note 1, at 1558.

Congress is subject to similar capture risk as an agency.⁷²

III. MITIGATING THE PROBLEMS OF TECHNOLOGY NEUTRALITY

It may be possible, however, for courts to mitigate the problems with the current technology neutral regime in two ways. First, Greenberg's framework can guide a more direct look at the intended scope of the Act when courts consider alleged infringement through new technology. For example, consider again the *Aereo* opinion. Justice Breyer and Justice Scalia did not appear to recognize they were applying different perceptual frames in examining the Aereo technology and business model. A more explicit recognition of those disparate perspectives might have improved the usefulness of that decision as a tool for courts analyzing the next technology shift.

Second, courts mindful of the limits of technology neutrality might craft a remedy resembling the compulsory license that Greenberg prefers in many cases of alleged infringement via new technologies.⁷³ As prescribed by the Copyright Act, infringement may be remedied with temporary or permanent injunctive relief,⁷⁴ or with compensation in the amount of the copyright owner's actual damages,⁷⁵ the infringer's profits,⁷⁶ or statutory damages.⁷⁷ In some cases, the prevailing party may also receive costs and attorney's fees.⁷⁸ Within that framework of remedies, might a court grant a prospective, postjudgment license?

Some commentators have argued in favor of affording courts discretion to grant a prospective license or ongoing royalty as an alternative to injunctive relief.⁷⁹ Although not

72. In fact, sometimes agency capture is a symptom of legislative capture. See, e.g., Adam J. Levitin, *The Politics of Financial Regulation and the Regulation of Financial Politics: A Review Essay*, 127 HARV. L. REV. 1991, 2045 (2014).

73. Greenberg, *supra* note 1, at 1559.

74. 17 U.S.C. § 502(a) (2012).

75. 17 U.S.C. § 504(b) (2012).

76. *Id.*

77. 17 U.S.C. § 504(c) (2012).

78. 17 U.S.C. § 505 (2012). Courts may also order the impounding or destruction of infringing articles, 17 U.S.C. § 503 (2012), or criminal penalties for infringement. 17 U.S.C. § 506 (2012).

79. See, e.g., Aaron Keyt, Comment, *An Improved Framework for Music Plagiarism Litigation*, 76 CAL. L. REV. 421, 459 (1988) (arguing that in some contexts, "[c]ourts are more competent than Congress to balance such

explicitly authorized by the current statute, it is possible that the power to grant injunctive relief might include the lesser power to grant a compulsory license.⁸⁰ Others question whether courts are well-suited or authorized to grant compulsory licenses.⁸¹

As a practical matter, courts have grown more willing to grant prospective licenses following the Supreme Court's decision in *eBay Inc. v. MercExchange, L.L.C.*⁸² The Court in *eBay* held that injunctive relief should not be granted as a matter of course in patent infringement cases.⁸³ Appellate courts applying *eBay* have likewise required a greater showing from copyright plaintiffs before granting injunctions.⁸⁴

Post-*eBay*, some courts have awarded a prospective or compulsory license against a defendant who could not be enjoined under the *eBay* standard, when the defendant signaled it would continue to infringe the intellectual property

particularized interests in deciding whether to grant a license, and to set appropriate terms"); William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659, 1723–26 (1988) (commending compulsory license solutions to conflicts over copyright entitlements, but noting the difficulty courts would face administering a license).

80. Keyt, *supra* note 79, at 459. See also Melville B. Nimmer, *Copyright Liability for Audio Home Recording: Dispelling the Betamax Myth*, 68 VA. L. REV. 1505, 1529–32 (1982) (discussing schemes for compulsory licenses in the context of innocent copyright infringers, and in antitrust and patent litigation).

81. See, e.g., H. Tomás Gómez-Arostegui, *Prospective Compensation in Lieu of A Final Injunction in Patent and Copyright Cases*, 78 FORDHAM L. REV. 1661, 1664–65, 1672 (2010) (arguing, despite the tendency of many courts post-*eBay* to “permit the defendant to infringe the plaintiff’s patent or copyright so long as it pays a continuing royalty” that “federal courts have no authority to award compulsory prospective compensation . . . for postjudgment copyright and patent infringements”); Wendy J. Gordon, *Fair Use As Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COLUM. L. REV. 1600, 1624 (1982) (observing that “it may be unwise to advocate judicial adoption of an alternative to fair use that asks courts essentially to restructure markets or to set prices for the use of copyrighted material”); Sigmund Timberg, *A Modernized Fair Use Code for the Electronic as Well as the Gutenberg Age*, 75 NW. U.L. REV. 193, 241 (1980).

82. 547 U.S. 388 (2006); Mitchell G. Stockwell, *Implementing eBay: New Problems in Guiding Judicial Discretion and Enforcing Patent Rights*, 88 J. PAT. & TRADEMARK OFF. SOC’Y 747, 756 (2006) (noting the historic hostility to compulsory licenses in patent law and a relaxation of that hostility in the wake of *eBay*).

83. *eBay*, 547 U.S. at 391.

84. See, e.g., *Christopher Phelps & Assocs. v. Galloway*, 492 F.3d 532, 543 (4th Cir. 2007) (applying the holding in *eBay* to the question of the court’s discretion to grant injunctive relief).

right in question.⁸⁵ For example, in *Paice LLC v. Toyota Motor Corp.*, the Federal Circuit held that a district court may impose a royalty on the future use of a patented invention in lieu of an injunction.⁸⁶ The court in *Paice* instructed district courts to give parties time to negotiate the royalty themselves,⁸⁷ but recognized the ability of a district court to exercise its equitable powers and calculate a royalty when the parties cannot agree.⁸⁸ District courts applying the *Paice* approach in patent cases frequently look to the jury's award of prejudgment damages as a starting point for postjudgment damages.⁸⁹

I have not found a copyright case that applies the *Paice* approach,⁹⁰ but that approach would be appropriate when a court is concerned that an injunction will prematurely shut down the new technology, and equally persuaded that use of the copyrighted expression should not go uncompensated. The Supreme Court has never directly held that a prospective license may be granted instead of injunctive relief in a copyright case, but the Court has nodded repeatedly in that direction.⁹¹ In *Sony Corp. of America v. Universal City Studios, Inc.*, a dissenting Justice Blackmun embraced the possibility of a prospective license on the sales of the Betamax video tape recorder.⁹² Ten years later, in *Campbell v. Acuff-Rose Music*,

85. See, e.g., *Voda v. Cordis Corp.*, No. CIV-03-1512-L, 2006 WL 2570614, at *6 (W.D. Okla. Sept. 5, 2006), *aff'd*, 536 F.3d 1311 (Fed. Cir. 2008) (“As the court has declined to issue a permanent injunction and defendant has indicated it will continue to infringe the patents-in-suit, the court must fashion a remedy for the continuing harm to plaintiff.”).

86. 504 F.3d 1293, 1315 (Fed. Cir. 2007).

87. *Id.* at 1315 & n.15.

88. *Id.* at 1315.

89. *Mondis Tech. Ltd. v. Chimei InnoLux Corp.*, 822 F. Supp. 2d 639, 645–46 (E.D. Tex. 2011). See also *Bianco v. Globus Med., Inc.*, 53 F. Supp. 3d 929, 943 (E.D. Tex. 2014) (applying the *Paice* approach in a trade secrets case). *But see* *ePlus, Inc. v. Lawson Software, Inc.*, No. 3:09CV620, 2011 WL 2119410, at *14 (E.D. Va. May 23, 2011), *modified*, 946 F. Supp. 2d 459 (E.D. Va. 2013), *vacated* 760 F.3d 1350, (Fed. Cir. 2014). (“The Court cannot envision a reasonable, reliable way to . . . arrive at an ongoing royalty” for patent infringement).

90. *But see* *Gomez-Arostegui*, *supra* note 81, at 1727 n.416 (summarizing lower court cases that “state in obiter dicta that continuing royalties are permissible” in copyright cases).

91. *Id.* at 1670–71 (summarizing the Court’s statements about using prospective licenses to remedy ongoing copyright infringement).

92. 469 U.S. 417, 499–500 (1983) (Blackmun, J., dissenting). The Ninth Circuit also contemplated a prospective license. *Universal City Studios, Inc. v. Sony Corp. of Am.*, 659 F.2d 963, 975–76 (9th Cir. 1981), *rev’d*, 469 U.S. 417 (1983).

Inc., the Court did not expressly endorse Justice Blackmun's suggestion, but cited with approval a Ninth Circuit opinion that recognized a prospective royalty as a potentially appropriate remedy.⁹³ And in 2001, the Court stated in *New York Times Co., Inc. v. Tasini*, that a continuing royalty might be an appropriate remedy for freelance authors whose articles were included without their permission in an electronic database.⁹⁴

Greenberg's analysis of the limitations of technology neutrality in the current Copyright Act provides good reason for courts to think creatively in assessing the proper remedy for ongoing infringement. The *Paice* approach—encouraging parties to negotiate a license, but calculating one if they cannot agree—is already used in patent cases, so it could conceivably be applied in copyright cases as well. Indeed, in light of the four problems that plague a technology neutral framework, the *Paice* approach or something like it might be an appropriate prudential response even in some “new technology” cases where the court might otherwise be inclined to grant injunctive relief.

CONCLUSION

Greenberg has done important work exposing the flaws in the Copyright Act's current focus on technology neutrality. His descriptions of the limitations of technology neutrality are particularly apt. The technological discrimination regime he proposes, however, is not well-suited to correct the problems with technology neutrality that he identifies. But his invitation to fully recognize the implications of technology change and to deal more directly with problems of prediction, penumbra,

93. *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 578 n.10 (1994) (noting that in some fair use cases, “the copyright owner's interest may be adequately protected by an award of damages for whatever infringement is found” (citing *Abend v. MCA, Inc.*, 863 F.2d 1465, 1479 (9th Cir. 1988), *aff'd sub nom. Stewart v. Abend*, 495 U.S. 207 (1990) (ordering the district court to calculate damages for a re-release of defendant's movie, which incorporated elements of plaintiff's copyrighted story))). Cf. Wendy J. Gordon, *Excuse and Justification in the Law of Fair Use: Transaction Costs Have Always Been Only Part of the Story*, 50 J. COPYRIGHT SOC'Y U.S.A. 149, 193 (2003) (arguing that after *Acuff-Rose*, a judge is “free to give the plaintiff a reasonable royalty or other compensation,” but questioning whether a liability rule should be encouraged).

94. 533 U.S. 483, 505–06 (2001) (affirming a judgment of infringement, but noting that “it hardly follows . . . that an injunction . . . must issue. . . . [C]ourts . . . may draw on numerous models for distributing copyrighted works and remunerating authors for their distribution”).

perspective, and pretense could improve judicial decisions in new technology cases. Furthermore, the invitation to consider solutions between the poles of innovation-crushing injunctions and incentive-stripping lack of liability is a welcome and praiseworthy addition to the literature.