

Technopolitics and copyright regulation

Hiram A. Meléndez Juarbe*

SELA June, 2011—Costa Rica

Some say copyright law is irrelevant in a digitally-networked environment because cheap, nearly perfect quality, reproduction and distribution of digital works make copyright enforcement pointless. Others hold the opposite: if copyright law seems less relevant today it's because enforcement of copyright interests through technological means is commonplace, displacing conventional legal mechanisms. Both are partially true; the second is mainly a reaction to the first, although incomplete in its claim that technology completely displaces law. After all, technological enforcement of copyright interests operates with explicit legal encouragement and sometimes in the shadow of legal entitlements or conditioned by incentive structures provided by law. Be that as it may, the fact is that copyright law is enforced through technology and, when it is, we experience the effects of political values embodied in these technologies and in their deployment. When this happens, it often affects free speech values.

“Do artifacts have politics?”, Langdon Winner famously asked.¹ Exactly in what way do they “have” them, what is the relationship between human values and technological artifacts? In a way the technological is political: design (as well as law, markets, social norms, power relations) may define who says what, when, and through which means.² Yet, it would be simplistic to say that designers inscribe values into

* University of Puerto Rico Law School. Contact information at www.elplandehiram.org/write. I would like to thank the following people for thoughtful comments: Érika Fontánez Torres, Anne Claire Jamart, Jason Mazzone, Guy Fiti Sinclair, William Vázquez Irizarry and students at the IP Law Colloquium at Brooklyn Law School.

Some Rights Reserved. This Work is licensed under a Creative Commons Attribution Non-Commercial 3.0 Puerto Rico License. You may find a copy of this license and an explanation of your usage rights and duties here: <http://creativecommons.org/licenses/by-nc/3.0/pr/>

¹ Langdon Winner, *Do Artifacts Have Politics?* 109 DAEDALUS 121 (1980).

² LAWRENCE LESSIG, *CODE: AND OTHER LAWS OF CYBERSPACE, VERSION 2.0* (2006).

technologies, which we somehow later receive intact. Technologies, information technologies no less, acquire social meaning throughout their development, deployment and use. Political, economic, cultural elements might help establish them as tools for freedom, control, sharing, community, piracy or whatever; beyond designers' prescriptions. In these processes, significantly, *users* are crucial: as technologies are appropriated, reinterpreted and re-inscribed by them. As soon as a technology is deployed in a social context its normativity is susceptible to reconfiguration; its values redefined (particularly highly malleable digital technology). This give-and-take of inscription, appropriation and resignification is a sort of “technological drama”³ often missed when considering the practical conditions for freedom of expression.

During the past two decades or so, legal academics have tried to elucidate the place of the user in these dynamics. Some think about them in terms of “user innovation”.⁴ Sometimes user activity is described as “hacking” or “tinkering”, while legal instruments worldwide prohibit “circumvention” of “effective technological measures” (or Digital Rights Management systems (DRM)): technological locks designed to limit the use of copyrighted works in digital formats.

DRM-laden environments were a consequence of the disruptive effects of networked information technologies on established information flows,⁵ preventing people from using works to the full extent allowed by traditional copyright liberties.⁶ As a

³ Bryan Pfaffenberger, *Technological Dramas*, 17 SCIENCE, TECHNOLOGY, & HUMAN VALUES 282 (1992).

⁴ ERIC VON HIPPEL, DEMOCRATIZING INNOVATION (2005); William Fisher III, *The Implications for Law of User Innovation*, 94 MINN L REV 1417 (2010).

⁵ YOCHAI BENKLER, THE WEALTH OF NETWORKS (2006).

⁶ By which I mean, following Litman, “[r]eading, listening, viewing, and their modern cousins watching, playing, running, and building”, Jessica Litman, *Lawful Personal Use*, 85 TEXAS L. REV. 1871, 1893 (2007).

result, the 1990's gave rise to claims for a "right to hack"⁷ DRM technologies. In the United States, this "right to hack" is sometimes supported by the idea that "code is speech" and, thus, code writing seen as covered by the constitutional free speech guarantee. If, like law, technology is a social structure that helps shape social reality, it may be that particular technological arrangements affect or constitutes the environment for expressive activity. Thus, it might be that claims for an individual "right to hack" (to manipulate or reconstitute technology) have to do with demands to define the conditions for freedom of expression.

That was roughly the discussion in the 1990's; yet, today, the idea of a *right to hack* seems increasingly relevant in light of current tendencies toward internet closure.⁸ Part of this closure occurs through a decrease in what Jonathan Zittrain calls "generative technologies": technologies, such as the internet and the general purpose PC, that have the "capacity to produce unanticipated change through unfiltered contributions from broad and varied sources".⁹ In turn, we see a gradual, global, move towards non-generativity in the internet ecology so that the online expressive environment increasingly depends on "tethered"—always on, always connected—appliances (like mobile phones and tablets, TV home systems, eBook readers, etc) that limit unanticipated creativity and innovation.

Because many devices through which we access digital goods are networked and are capable of "phoning home" or being contacted by a central command for amendment,

⁷ Julie Cohen, *A Right to Read Anonymously: A Closer Look at "Copyright Management" in Cyberspace*, 28 CONN. L. REV. 981 (1996); Julie Cohen, *The Jurisprudence of Self Help*, 13 BERKELEY TECH. L. J. 1089 (1998).

⁸ Of which "net neutrality" debates are a large component. See BARBARA VAN SCHEWICK, *INTERNET ARCHITECTURE AND INNOVATION* (2010).

⁹ JONATHAN ZITTRAIN, *THE FUTURE OF THE INTERNET—AND HOW TO STOP IT* 70 (2008).

upgrades or redesign, user behavior generally (and copyright use in particular) is, therefore, regulable at a distance.¹⁰ It is in this context where the “right to hack” rears its head today (fashionably known as “jailbreaking”)¹¹ suggesting something beyond singular DRM circumvention and “lock breaking” and, more connected to liberating users from the constraining effects of non-generative socio-technical systems.

In light of these developments, in this paper I originally set out to explore arguments behind this “right to hack” from the perspective of US copyright law (with which I am more familiar), but found that the extent to which it can be supported is unclear. And although I initially assumed its feasibility, I am now skeptical. This exploration led me to believe that although a right to hack is not pointless, but given current developments in copyright enforcement, is generally unhelpful and, instead, our sights should be on the broader socio-technical systems and technopolitical practices that constitute copyright law and technology.

¹⁰ A recent controversy presents an example: when designing an e-book reader, a developer might consider whether to incorporate a “read-aloud” function. When Amazon included such feature in its Kindle 2, the Author’s Guild claimed that the read-aloud function infringes their copyrights. Over the Author’s Guild’s objection, the National Federation of the Blind argued that to read a book to another (by a human or machine) is a legally (and one might add, constitutionally) protected practice. Although Amazon initially defended the function as non-infringing, in the end it capitulated allowing each publisher to control whether to allow the read-aloud function to work on particular books. In the end, not only is the innovation hampered; people that need it the most will not receive its benefits and the creativity and expression that goes with it might be lost. See Geoffrey A. Fowler & Jeffrey A. Trachtenberg, *New Kindle Audio Feature Causes a Stir*, Washington Post, Feb. 10, 2009, http://online.wsj.com/article/SB123419309890963869.html?mod=yahoo_hs&ru=yahoo; NFB, *National Federation of the Blind Responds to Authors Guild Statement on the Amazon Kindle 2*, Feb. 12, 2009, <http://www.nfb.org/nfb/NewsBot.asp?MODE=VIEW&ID=412&SnID=1916786125>; Greg Sandoval, *Amazon retreats on Kindle’s text-to-speech issue*, Feb. 27 2009, <http://news.cnet.com/amazon-retreats-on-kindles-text-to-speech-issue/>.

¹¹ Recently the Library of Congress allowed, as an exception to the DMCA, jailbreaking of phones for interoperability, allowing “Computer programs that enable wireless telephone handsets to execute software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications, when they have been lawfully obtained, with computer programs on the telephone handset.” Federal Register/Vol. 75, No. 143/Tuesday, July 27, 2010. See Electronic Frontier Foundation, *EFF Wins New Legal Protections for Video Artists, Cell Phone Jailbreakers, and Unlockers*, <https://www.eff.org/press/archives/2010/07/26>, July 27, 2010.

The paper's argument can be summarized as follows: A copyright system reflects struggles to define the relationship between competing values. This competition not only manifests itself in copyright *law*, but also (and increasingly) in copyright *technology*. Technologies embody contestable social values; values that can be reshaped when deployed in a social context. Copyright technology is no exception and, thus, we experience efforts to reshape the copyright system (and the values within it) by affecting the technological landscape in which it is located (in what I refer to as *technopolitics*). Claims for a right to hack are but one manifestation of these processes but, as I will argue, an insufficient one at best. Realizing the limits of a right to hack thrusts our technopolitics into broader socio-technical arrangements.

I. Copyright and Socio-Technical Systems

Implicit in the *Introduction* is the idea that a copyright system is comprised of more than legal enactments: it includes the relationship between law and the relevant technologies (and the affordances and constraints provided by these technologies).¹² Thus, copyright law and copyright technology jointly constitute a complex *copyright system*, striking balances and managing competing pressures that help shape the expressive environment. I explore first copyright law, then copyright technology.

A. Law

In the United States (and I am tempted to say, almost elsewhere), copyright law is inherently unstable. Copyright law is a system of values, and not about pursuing a single goal. At any given point its shape will depend on the interaction between constantly-competing domains of value that exert pressure against one another. These correspond,

¹² DONALD NORMAN, *THE DESIGN OF EVERYDAY THINGS* (2002). The term “affordance” refers to “the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used,” *id.* at 9, while “constraints limit the number of alternatives” *Id.* at 82.

respectively, to three paradigms or copyright worldviews: *incentives*, *property* and *speech*. How we define each of these paradigms as well as their interactions will impact how individuals should relate with content and, thus, shape an important aspect of the expressive environment. I cannot elaborate these themes here in depth; but some precisions are appropriate.

According to one justification, copyright aims to maximize social welfare by providing sufficient *incentives* to information producers, preventing free riding. But, because innovation is cumulative, information is both an output and an input of the creative process. Thus, information products have a social value that exceeds the private value to the first creator and the scope and duration of copyright law depends on how much these innovation spillovers are believed to aid follow-on creators. IP rights will depend on how to balance incentives to initial creators with the innovation's social benefit; and hence, the biggest challenge with privatization of intellectual resources resides in insuring the production of this public good, while limiting the property right enough to prevent underutilization. In this story, the individual is pictured as choosing between utility maximizing action possibilities. Of course, authors on many occasions create for reasons other than economic rewards and follow creative pursuits for reasons such as a desire to communicate, peer respect and recognition.¹³ The incentive rationale, and its accompanying idea of the creator, is challenged by the fact of peer-production in a networked information economy or the many cases of user-generated innovation studied

¹³ Zimmerman, Diane Leenheer, *Copyrights as Incentives: Did We Just Imagine That?* (November 30, 2009). *Theoretical Inquiries in Law*, Forthcoming. Available at SSRN: <http://ssrn.com/abstract=1515964>

by von Hippel.¹⁴ But the incentives paradigm is incredibly resilient and, accordingly, the US Supreme Court conceives the copyright system as such: “[b]y establishing a marketable right to the use of one’s expression, copyright supplies the economic incentive to create and disseminate ideas.”¹⁵ By and large this paradigm operates *ex-ante*, providing incentives as a precondition to innovation, and could justify minimal copyright protections *only* to the extent necessary to induce production, but could (and often does) underlie maximalist “*ex-post*”¹⁶ justifications for strong protection such as limited fair use privileges or indefinite term extension.¹⁷ The extent to which the *ex post* version can be kept at bay depends on how *incentives* interacts with *property* and *speech*.

In addition, it is easy to move from an instrumentalist perspective to a view of moral desert. “The thought moves from *encouragement*, to *incentive*, to *benefit*, to *reward*, to *desert*, so that something that starts off as a matter of desirable social policy

¹⁴ ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION* (2005). Others, without challenging this image of what motivates innovation, question instead whether the intellectual property monopoly is welfare enhancing. MICHELLE BOLDRIN & DAVID K. LEVINE, *AGAINST INTELLECTUAL MONOPOLY* (2008)

¹⁵ *Eldred v. Ashcroft*, 537 U.S. 186 (2003)

¹⁶ Mark Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129 (2004). It is argued that only strong intellectual property rights give the first creator efficient incentives to innovate and improve over an existing work over time since they are adequately positioned to perceive market signals over initial instantiations of the work and that strong protection prevents overuse, avoiding a decrease in the value of intellectual property rights. See e.g. Randall Picker, *Fair Use v. Fair Access*, at 16 John M. Olin Law & Economics Working Paper No. 392 (2d Series, 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1104764 (arguing that the initial author is in a better position to “take advantage of the information that we know will be forthcoming to make the second-stage investment decision”). WILLIAM LANDES & RICHARD POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 222 (Harvard 2003) (discussing congestion externalities that they argue are applicable to copyright law) “One purpose of giving the owner of a copyright a monopoly of derivative works is to facilitate the scope and timing of the exploitation of the copyrighted work—to avoid, as it were, the ‘congestion’ that would result if once the work was published anyone could make and sell translations, abridgements, burlesques, sequels, versions in other media from that of the original ... or other variants without the copyright owner’s authorization.” *Id.* at 226.

¹⁷ *Eldred v. Ashcroft*, 537 U.S. 186 (2003); Richard Epstein, *The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary*, SSRN eLibrary (2008), at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1236273; Epstein, Richard A., *What is So Special about Intangible Property? The Case for Intelligent Carryovers* (August 16, 2010). U of Chicago Law & Economics, Olin Working Paper No. 524. Available at SSRN: <http://ssrn.com/abstract=1659999>

ends up entrenched in an image of moral entitlement.”¹⁸ This normative *property paradigm* takes several forms. On one view, intellectual property is justified as a matter of moral desert, valuing the mixture of individual labor with common resources.¹⁹ In addition, the property paradigm is embodied in property personality justifications that support author moral rights in most countries.²⁰ Although US courts pay lip service to the incentives rationale, the moral desert paradigm takes a strong hold on popular imagination and legal discourse. In the words of a federal judge: “‘Thou shalt not steal’...The conduct of the defendants...violates not only the Seventh Commandment, but also the copyright laws of this country.”²¹ In the process, unauthorized use acquires a decisive moral complexion.²² As Waldron put it, “[i]f we think of an author as having a natural right to profit from his work, then we will think of the copier as some sort of thief”.²³ Portrayal of the author as a property owner, not only in the law and in legal discourse but also as a general social understanding, reinforces the property paradigm either independently or as it gets fed into the welfarist incentives account in its strong, *ex post*, version. This is especially true when the entertainment industry pursues aggressive “educational” campaigns to portray all unauthorized copying as illegal and, hence, all

¹⁸ Jeremy Waldron, *From Authors to Copiers: Individual Rights and Social Values in Intellectual Property*, 68 CHI. KENT. L. REV. 841, 851 (1993).

¹⁹ See Wendy Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L. J. 1533 (1993). See also Daniel Attas, *Lockean Justifications of Intellectual Properties in*, INTELLECTUAL PROPERTY AND THEORIES OF JUSTICE at 29 (Axel Gosseries, Alain Marciano and Alain Strowel, Eds. 2008).

²⁰ See Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L. J. 287 (1988). With regards to moral rights in general see, Cyrill P. Rigamonti, *Deconstructing Moral Rights*, 47 HARV. INT’L. L. J 353 (2006). In the United States see Visual Artists Rights Act of 1990, codified in 17 USC §§ 101, 106A. For some supporting views of moral rights in the United States, see Roberta Rosenthal Kwall, *Inspiration and Innovation: The Intrinsic Dimension of the Artistic Soul*, 81 NOTRE DAME L. REV. 1945, 1983-2012 (2006).

²¹ *Grand Upright v. Warner*, 780 F. Supp. 182 (S.D.N.Y. 1991)

²² See EDUARDO MOISÉS PEÑALVER & SONIA K. KATYAL, *PROPERTY OUTLAWS: HOW SQUATTERS, PIRATES, AND PROTESTERS IMPROVE THE LAW OF OWNERSHIP* (Yale University Press. 2010); Julie Cohen, *The Place of the User in Copyright Law*, 74 FORDHAM L. REV. 347, 351 (2005).

²³ Waldron, *supra* note 18 at 842.

who engage in that practice as thieves.²⁴ The idea is to “invest unauthorized private copying with moral significance.”²⁵

The *speech paradigm* is sometimes seen as part of the incentives paradigm as limitations on speech via the copyright monopoly are justified to the extent it creates conditions for creative and expressive processes.²⁶ Sometimes an author’s control over works is justified on the basis of her speech interest in assuring that her “expression will remain unadulterated.”²⁷ Conversely, from the perspective of downstream users, the presence of speech interests in intellectual property’s DNA conditions (or should condition) the reach of the property interest.²⁸

Some critics of copyright’s expansion concentrate on the output of speech, its contribution to a marketplace of ideas and the quality of debate; thus, would value in copyright law transformative or “constructive” uses by unauthorized users with priority over appropriation, consumptive and non-transformative use.²⁹ Autonomy-based speech theories in copyright law, on the other hand, favor individual engagement with cultural products as part of processes of self-determination. In this vein, some value personal and private experimentation with copyrighted works regardless of expressive output.³⁰

²⁴ PALFREY & GASSER, BORN DIGITAL: UNDERSTANDING THE FIRST GENERATION OF DIGITAL NATIVES 137 (2008). See the Copyright Alliance Education Foundation, <http://www.copyrightfoundation.org/>. See also, Nate Anderson, *EFF gives copyright education a crack with new curriculum*, Ars Technica, May 28 2008, at <http://arstechnica.com/tech-policy/news/2009/05/eff-gives-copyright-education-a-crack-with-new-curriculum.ars>

²⁵ Julie Cohen, *The Place of the User in Copyright Law*, 74 FORDHAM L. REV. 347, 351 (2005).

²⁶ Harper & Row v. Nation Enterprises, 471 US 539, 558 (1985) (“the Framers intended copyright itself to be the engine of free expression. By establishing a marketable right to the use of one’s expression, copyright supplies the economic incentive to create and disseminate ideas.”)

²⁷ Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L. J. 287, 359 (1988).

²⁸ Doctrinally speaking, the Supreme Court has rejected the view that copyright law is “categorically immune from challenges under the First Amendment.” Eldred v Ashcroft, 537 U.S. 186 (2003).

²⁹ See e.g. Eldred v. Ashcroft, 537 U.S. 186 (2003) (emphasizing the low speech value of “mak[ing] other’s people’s speeches”). See NEIL NETANEL, COPYRIGHT’S PARADOX (2008).

³⁰ Rebecca Tushnet, *Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It*, 114 YALE L.J. 535 (2004).

Others value appropriation as a step to participation in a “semiotic democracy”.³¹ These views are highlighted in the context of digital technologies because the material conditions for the production and manipulation of cultural products allow us, more than before, to relate with them as active participants of cultural processes that allow personal experimentation with cultural elements and not as passive recipients of information goods.³² Usual labels associated with these practices include notions of “democratic culture”³³ or “creative reuse”.³⁴

Different parts of copyright doctrine reflect a relative priority between rationales while underscoring values within each. The law also prescribes mechanisms to negotiate tensions between them, as they are all necessary for sustaining copyright law as a paradoxical system of speech-enabling restrictions on speech. But it does this rather haphazardly, rendering a highly indeterminate system. The first copyright statute, the Statute of Anne of 1710, was interpreted early on to embody a positive law view of the limited monopoly for the benefit of the public as opposed to a perpetual natural law right for the exclusive benefit of the copyright owner.³⁵ However, both in England and in the

³¹ WILLIAM W. FISHER III, PROMISES TO KEEP: TECHNOLOGY, LAW AND THE FUTURE OF ENTERTAINMENT 30-31 (Stanford 2004) (“[O]pportunities for creativity of this sort contribute to what has been called “semiotic democracy”. Over the course of the twentieth century the power to make cultural meaning in most Western countries has become ever more concentrated. . . . Reversing the concentration of semiotic power would benefit us all. People would be more engaged, less alienated, if they had more voice in the construction of their cultural environment. And the environment itself . . . would be more variegated and stimulating. The new technology makes that possible”).

³² See Jack Balkin, *Digital Speech and Democratic Culture: A Theory of Freedom of Expression for the Information Society*, 79 NYU L REV. 1, 3-4 (2004) (describing “democratic culture” as “a culture in which individuals have a fair opportunity to participate in the forms of meaning making that constitute them as individuals”); Tushnet, *supra* at 565; BENKLER, *supra*.

³³ Balkin, *supra*.

³⁴ LESSIG, REMIX (2008).

³⁵ The first copyright statute was a reaction to the censorial grip that the Crown-controlled Stationer’s Company had on publications under the Licensing Act of 1662. L. Ray Patterson and Craig Joyce, *Copyright in 1791: An essay concerning the Founders’ View Of The Copyright Power Granted To Congress In Article I, Section 8, Clause 8 of the US Constitution*, 52 EMORY L.J. 909 (2003). When the United States Constitution and the 1790 Copyright Act were enacted, the House of Lords had rejected booksellers’ arguments that their underlying rights after the passage of the Statute of Anne were perpetual

United States copyright law was also infused with an author-centric natural law flavor, even if mixed with the utilitarian rationale.³⁶

Through numerous doctrines (such as fair use, substantial similarity,³⁷ the idea/expression dichotomy, and the notion of merger³⁸) the law continuously negotiates competing claims coming from the standpoints of speech, property and incentives. And it is not clear which is necessarily dominant: For example, on one hand, the copyright monopoly is directly seen by US courts within the *ex ante* incentives paradigm, and explicitly linked to free speech values.³⁹ But in other cases *ex ante* incentives and speech are of limited reach as *Eldred v. Aschcroft* demonstrates.⁴⁰ There the Court validated (against a first amendment attack) a twenty-year term extension period to existing works whose protection was about to expire; even if it cannot plausibly be said that this

as a consequence of their natural law stature. *Donaldson v. Becket*, 98 Eng. Rep. 257 (HL 1774). This positive law, limited-monopoly, approach was imported to the United States and reiterated early on by the Supreme Court. *See Wheaton v. Peters*, 33 US (8 Pet.) 591 (1834). *See* LYMAN RAY PATTERSON, COPYRIGHT IN HISTORICAL PERSPECTIVE 211 (1968); Dianne Leenheer Zimmerman, *Information Goods as Speech, Information as Goods: Some Thoughts on Marketplaces and the Bill of Rights*, 33 WM. & MARY L. REV. 665, 677-85 (1992).

³⁶ Diane Zimmerman *The Statute of Anne and its Progeny: Variations Without a Theme*, *Houston Law Review*, Vol. 47, No. 4. *See* Preamble of Massachusetts copyright statute of 1783: “Whereas the improvement of knowledge, the progress of civilization, ... greatly depend on the efforts of ingenious persons ...; as the principal encouragement such persons can have to make great and beneficial exertions of this nature, must exist in the legal security of the fruits of their study and industry to themselves; and as such security is one of the *natural rights of all men, there being no property more peculiarly a man’s own than that which is produced by the labour of his mind...*” Cited in PATTERSON, *supra* at 187.

³⁷ Compare *Suntrust Bank v. Houghton Mifflin Co.*, 268 F. 3d 1257 (11 Cir. 2001) (alternate version of *Gone With The Wind*, not substantially similar); *Salinger v. Colting*, 607F.3d 68 (2d Cir. 2010). (sequel to JS Salinger’s *The Catcher in the Rye*, substantially similar).

³⁸ *See, e.g.*, *Computer Associates v. Altai*, 982 F2d 693 (2d Cir. 1992), emphasized the competing claims in that case as follows:

... amici argue against the type of approach that we have set forth on the grounds that it will be a disincentive for future computer program research and development. . . While they have a point, their argument cannot carry the day. The interest of the copyright law is not in simply conferring a monopoly on industrious persons, but in advancing the public welfare through rewarding artistic creativity, in a manner that permits the free use and development of non-protectable ideas and processes.

³⁹ *Harper & Row v. Nation Enterprises*, 471 US 539, 558 (1985) (“the Framers intended copyright itself to be the engine of free expression. By establishing a marketable right to the use of one’s expression, copyright supplies the economic incentive to create and disseminate ideas.”)

⁴⁰ *Eldred*, 537 U.S. 186 (2003).

retroactive extension created additional incentives to generate expressive output (since the present value of a future revenue stream under the life-plus-seventy year extension is low, it negligibly increases an authors' incentive).⁴¹ Statutorily, there are a number of instances in which these struggles find their ways. Many user privileges and limits to the monopoly are found in the law⁴² but the trend is clearly toward monopoly aggrandizement, closer to the ideal property paradigm of absolute protection and *ex post* incentives.⁴³ This uneasy interaction is perhaps best observed in the fair use doctrine, which seeks to balance public access interests with those of copyright owners creating a highly indeterminate and contextual body of law.⁴⁴

Specifying the appropriate relation between these paradigms is beyond this paper's scope. But their allocation will depend to a great extent on the reciprocally-

⁴¹ BRIEF OF GEORGE A. AKERLOF, KENNETH J. ARROW, TIMOTHY F. BRESNAHAN, JAMES M. BUCHANAN, RONALD H. COASE, LINDA R. COHEN, MILTON FRIEDMAN, JERRY R. GREEN, ROBERT W. HAHN, THOMAS W. HAZLETT, C. SCOTT HEMPHILL, ROBERT E. LITAN, ROGER G. NOLL, RICHARD SCHMALENSEE, STEVEN SHAVELL, HAL R. VARIAN, AND RICHARD J. ZECKHAUSER AS AMICI CURIAE IN SUPPORT OF PETITIONERS, *Eldred v. Achcroft*, No. 01-618 May 20, 2002,

⁴² See 17 USC § 107-122

⁴³ Both procedurally and substantively, copyright protection has expanded tremendously. Since 1976, many of the formal requirements needed to protect a work have been eliminated, moving copyright protection farther away from the positive law paradigm. For example, it is no longer required that a work be published as a precondition for protection. Requirements for protection such as notice, deposit, registration and term renewal have been eliminated. Today a work is protected by default since its creation and fixation in a tangible medium of expression for an extraordinarily extensive period of time (ordinarily the life of the author plus 70 years), instead of the shorter and fragmented periods that predated the 1976 Act. This period has been extended several times in the last century delaying the entrance of works into the public domain (sometimes even reverting their public domain status and reestablishing their protection).

Furthermore, copyright protection today is not limited to reproduction rights since it includes, for instance, the right to make derivative works (which, in turn, broadly includes translations, musical arrangements, dramatization, fictionalization "or any other form in which the work may be recast, transformed or adapted"). As a constitutional matter, while the preambular language of the intellectual property clause in the Constitution was stripped from any significant teeth early in the twentieth century, the originality requirement has not been an important threshold for copyright limit, as some would have it to be. Additionally, notwithstanding the recent flexibilization of injunctive remedies in intellectual property cases, infringement is subject to steep statutory damages, costs and attorney's fees while the costs of litigation to individual users is notoriously prohibitive.

⁴⁴ 17 USC § 107. When addressing a fair use claim, courts are required to consider four factors on a case-by-case basis: (1) the nature and character of the use; (2) the nature of the original work; (3) the portion of the original work used; (4) and the effect of the use on the potential market. *Campbell v. Acuff Rose Music Inc.*, 510 U.S. 569, 577 (1994).

conditioning effects that paradigms will have on each other (with prevailing values within them corresponding to constitutional commitments). This should, in turn, elicit at least some rough principles and outer boundaries to evaluate the copyright system.⁴⁵ In any case, the point here is that statutory law might reflect a different allocation of copyright rationales than what would be constitutionally required and, in those cases, adjustments are necessary. Additionally, and returning to our central question, sociotechnical arrangements might encode a different constellation of speech, incentives and property, which in turn might be subjected to user appropriation and reconstitution.

B. Copyright Technology

There is no agreement on a definition of “technology”, its relation to science, physical artifacts, goals, social practices, discourses, power or techniques (if one

⁴⁵ In my view, if US copyright law is to be consistent with the First Amendment, then, the demarcation of boundaries between speech and incentives should result in a minimalist approach prohibiting only those unauthorized uses that have “*the likely consequence of largely destroying, not merely reducing, the market for authorized copies of the copyrighted material.*” Edwin Baker, *First Amendment Limits on Copyright*, 55 VAND. L. REV. 891 (2002). This follows from a liberal reading of current constitutional doctrine that is usually wary of state intervention with speech and protects individual autonomy for public discourse regardless of its substantive contribution. See *Snyder v Phelps*, No. 09–751. Argued October 6, 2010—Decided March 2, 2011 (the first amendment embraces speech of public concern even when it is “certainly hurtful and its contribution to public discourse may be negligible”). Although this view cannot explain all First Amendment doctrine, it carries substantial explanatory power. Robert Post’s participatory theory is eloquent in this regard: Only few restrictions on individual communicative activity are allowed—those restrictions that can be said to support structures of social cohesion necessary for democratic legitimacy through participation in public discourse. ROBERT POST, *CONSTITUTIONAL DOMAINS: DEMOCRACY, COMMUNITY, MANAGEMENT* (1995). This notion does not seamlessly translate into intellectual property, as copyright law embodies structural limits to this approach: because by their very creation rights over information goods have built-in limitations to public access to works, State intervention with public discourse through copyright is *presumed*. Thus, Copyright law in the US provides a constitutionally permitted ceiling of state-sponsored speech-limiting norms (provided by the incentives paradigm allowed by US Constitution, Art 1, Section 8, Cl. 8, which authorizes Congress “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries”). While liberals dispute the reach of government intervention with public discourse, the extent to which the individual autonomy camp can pull in the direction of state neutrality is limited by the fact of this explicitly-authorized State intervention. But the First Amendment’s commitment to individual autonomy and neutrality exerts pressure and requires this intervention to be as minimal as possible; and, hence, a minimalist role for the copyright monopoly (and for the *ex ante* incentives paradigm) is required, given by the gravitational pull of the speech paradigm.

definition is possible); and I will not attempt to define it here.⁴⁶ For the purpose of this paper, and adapting Winner's version,⁴⁷ I talk about "copyright technologies" when referring to tools, instruments, machines, appliances, gadgets—be they physical hardware (like ISPs, CPUs, mobile devices, wires, satellites, network routers) or software (operating systems, TCP/IP, applications)— which are employed in order to affect the use, distribution or reproduction of copyrighted content. More specifically framed within the arguments here made, I refer to those information technologies that have a role to play in the accommodation of copyright paradigms.

Philosophers of technology also include within their conceptions of technology, not only artifacts, but also "social practices, social relationships, and systems of knowledge"⁴⁸ since artifacts only have meaning in the context of social interaction. Therefore, it is useful to think of copyright technologies as components of *socio-technical systems* in order to capture institutions, organization the law and related practices⁴⁹ and to highlight their social dimension as "they affect us not purely by dint of physical or material properties but by properties they acquire as systems and devices embedded in larger material and social networks and webs of meaning."⁵⁰ And this is surely the case with copyright technologies: While digital technologies have unleashed unprecedented amounts of unauthorized creative uses and expressive activity,

⁴⁶ See generally essays at ROBERT C SCHARFF AND VAL DUSEK (EDS), *PHILOSOPHY OF TECHNOLOGY: THE TECHNOLOGICAL CONDITION*, AN ANTHOLOGY 206-43 (2003).

⁴⁷ LANGDON WINNER, *AUTONOMOUS TECHNOLOGY: TECHNOLOGY OUT OF CONTROL AS A THEME IN POLITICAL THOUGHT* 11 (1977).

⁴⁸ Deborah G. Johnson, *Computer systems: Moral entities but not moral agents*, 8 *ETHICS AND INFORMATION TECHNOLOGY* 195, 197 (2006).

⁴⁹ Thomas Hughes, *The Evolution of Large Technological Systems* 51, in BIJKER, HUGHES, PINCH, *THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS: NEW DIRECTIONS IN THE SOCIOLOGY AND HISTORY OF TECHNOLOGY* (1989); Thomas Hughes, *Technological Momentum* 101, in MERRITT ROE SMITH AND LEO MARX, *DOES TECHNOLOGY DRIVE HISTORY?: THE DILEMMA OF TECHNOLOGICAL DETERMINISM* (1998).

⁵⁰ HELEN NISSENBAUM, *PRIVACY IN CONTEXT: TECHNOLOGY, POLICY, AND THE INTEGRITY OF SOCIAL LIFE* 6 (2010).

contemporary socio-technical systems that regulate information goods induce a sort of colonization of speech by property and incentives.

It is well known that digital technologies changed the landscape in which copyright law operates. As a response, through DRMs (or Technological Protection Measures), content owners are capable of controlling works well beyond legitimate claims of copyright by limiting fair uses; affecting—otherwise protected—personal non-commercial use of content; regulating works in the public domain; or impeding the exercise of rights that a user would otherwise have according to the first sale doctrine. In some cases, as with the music industry, consumer demand for interoperability and flexibility in the use of digital goods has pressured content owners to provide works with less rigorous protection.⁵¹ But in other cases, such as the eBook industry, works cannot be shared (some books can be lent for up to 14 days, and only once), sold, copied, printed, and are unable to interoperate between devices of different vendors.⁵² In a notorious case, purchased eBook copies of Orwell's *1984* was remotely removed from users' handheld devices by Amazon, for licensing reasons.⁵³ This kind of technological self-help is buttressed in current US law by the Digital Millennium Copyright Act (DMCA)⁵⁴ (and elsewhere through the WIPO Copyright Treaty,⁵⁵ in Europe with the EC Information Society Directive⁵⁶ and in the proposed Anti-Counterfeiting Trade

⁵¹ Hiram A. Meléndez Juarbe, *DRM Interoperability*, XV B.U. J. SCI. TECH. L 181 (2009).

⁵² Rob Pegoraro, *E-book business should take a page from music industry and go DRM-free*, http://www.washingtonpost.com/e-book-business-should-take-a-page-from-music-industry-and-go-drm-free/2011/04/05/AFBRbG1C_story.html, April 8, 2011.

⁵³ Brad Stone, *Amazon Erases Orwell Books From Kindle*, July 17, 2009, <http://www.nytimes.com/2009/07/18/technology/companies/18amazon.html>

⁵⁴ Digital Millennium Copyright Act of 1998, 17 USC § 1201.

⁵⁵ Art. 11, World Intellectual Property Organization Treaty, Dec. 20, 1996

⁵⁶ EC Information Society Directive, Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001, Article 6 (regarding the protection of “technological measures”).

Agreement)⁵⁷ which prohibit decoding or hacking these technological protections, even when the underlying uses would be legitimate and, perhaps, constitutionally protected (to the extent the speech paradigm can be said to restrict incentives and property). It is here where the “right to hack” is normally invoked, as a reaction to constraining effects of technologies embedded into media (eg, CDs, DVDs) or devices people have physical access to.

It should be clear, then, that copyright technologies, as part of socio-technical systems, are not value-neutral: they are intimately related to human values.⁵⁸ Values are embodied in information technologies constituting our social experience (creating affordances, constraints, enabling practices and discourses);⁵⁹ but only reciprocally, as we mustn't forget we incorporate values into technologies in the first place.⁶⁰ Design choices (and values behind them) will make possible certain behavior, precluding other activities.⁶¹ Although in the end, a “technology’s actual use depends on the goals of the people interacting with it.”⁶²

⁵⁷ ACTA Article 27(5) (December 3, 2010 version) available at <http://www.wcl.american.edu/pijip/go/acta>.

⁵⁸ See William W. Lowrence, *The Relation of Science and Technology to Human Values*, 38 in TECHNOLOGY AND HUMAN VALUES: ESSENTIAL READINGS (CRAIG HANKS, ED.) (2010).

⁵⁹ Lucas Introna, *Towards a post-human intra-actional account of socio-technical agency (and morality)*, Proceedings of the Moral agency and Technical Artefacts scientific workshop NIAS Hague May 2007 (DRAFT) available at www.nyu.edu/projects/nissenbaum/papers/posthuman.pdf; DONALD NORMAN, *THE DESIGN OF EVERYDAY THINGS* (2002).

⁶⁰ See MANUEL CASTELLS, *THE RISE OF NETWORK SOCIETY* 5 (200, 2ND ED) (“technology does not determine society. Nor does society script the course of technological change, ...Indeed, the dilemma of technological determinism is probably a false problem, since technology is society, and society cannot be understood or represented without its technological tools.”) See generally, MERRITT ROE SMITH & LEO MARX, EDS., *DOES TECHNOLOGY DRIVE HISTORY? THE DILEMMA OF TECHNOLOGICAL DETERMINISM* (1998).

⁶¹ Flanagan, M., Howe, D. C., & Nissenbaum, H., *Embodying Values in Technology: Theory and Practice* in J. VAN DEN HOVEN & J. WECKERT (EDS.), *INFORMATION TECHNOLOGY AND MORAL PHILOSOPHY* 322 (2008).

⁶² Batya Friedman, Peter H. Kahn, Alan Borning, *Value Sensitive Design and Information Systems*, in DENNIS GALLETTA, PING ZHANG, *HUMAN-COMPUTER INTERACTION AND MANAGEMENT INFORMATION SYSTEMS: FOUNDATIONS* at 361 (2006).

Like many other technologies, copyright technologies are the result of contingent processes where social groups give meaning, favor and interpret technologies according to historical, cultural and political factors, and relations of power.⁶³ During the course of a technology's history, designs that may seem less desirable get discarded (according to normative criteria, such as whether it maximizes IP protection), while other designs are accepted. That is, a technology gets "settled" at the expense of discarded designs, eventually losing its "interpretive flexibility"—acquiring a measure of "stabilization"⁶⁴ (creating frameworks of meaning that, could generate path dependency in the trajectory of a technology), but that—crucially—could also be subjected to contestation by users or disruptive innovations.⁶⁵

This "intersection of politics and technology", the ongoing give and take of social value-laden interaction that produces a certain technological ensemble, is what I call *technopolitics*.⁶⁶ It rejects the sense in which some assume the technological environment as overpowering and dystopian and, instead, straightforwardly assumes its political potential. In this sense, "as a technologically mediated form of political engagement and action, [technopolitics] is a radical tool potentially available to oppositional, oppressed, or excluded social groups and communities".⁶⁷

⁶³ BIJKER, HUGHES, PINCH, *THE SOCIAL CONSTRUCTION OF TECHNOLOGICAL SYSTEMS: NEW DIRECTIONS IN THE SOCIOLOGY AND HISTORY OF TECHNOLOGY* (1989); WIEBE BIJKER, *OF BICYCLES, BAKELITES, AND BULBS: TOWARD A THEORY OF SOCIOTECHNICAL CHANGE* (1997); WIEBE BIJKER & JOHN LAW, EDs., *SHAPING TECHNOLOGY / BUILDING SOCIETY: STUDIES IN SOCIOTECHNICAL CHANGE* (1997).

⁶⁴ BIJKER, *OF BICYCLES, BAKELITES, AND BULBS*, *id.* at 84-88.

⁶⁵ *Id.* at 289. For the problems of contingency and stability in the philosophy of science see IAN HACKING, *THE SOCIAL CONSTRUCTION OF WHAT?* (1999). On "disruptive innovations" see CLAYTON CHRISTENSEN, *THE INNOVATOR'S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL* (1997).

⁶⁶ Charalambos Tsekeris, *Technopolitics*, Blackwell Encyclopedia of Sociology. Ritzer, George (ed). Blackwell Publishing, 2007. Blackwell Reference Online (April 2008 Update).

⁶⁷ *Id.*

Hence, Digital Rights Management technologies (or Technological Protection Measures) are products of technopolitical dynamics. They carry that name because they are normative systems that respond to a particular view on what the relationship between copyright paradigms ought to be. The meaning of those technologies has somewhat stabilized (with the help of the legal context in which they inhabit, which is in part structured by those technologies) and are generally seen by many as absolutely necessary preconditions to the existence of intellectual property in a digital environment.⁶⁸ They could alternatively be referred to as “Digital Restrictions Management” or “Digital Restrictions Malware”, but they are not.⁶⁹ In addition, alternative DRM designs have been proposed but ultimately discarded, caught in the crossfire of the “copyright wars”.⁷⁰ In a way, we are kind of stuck with DRMs, as products of the political, economic and social struggles underlying efforts to define the copyright system. In this context a “right to hack” can be seen as part of an ongoing struggle over the meaning of copyright technology and, through technological means, a struggle to define the content of (and relationship between) copyright paradigms.

From a legal-constitutional perspective, in light of the aforementioned DMCA, this right to hack is proposed by Julie Cohen as follows:

⁶⁸ A leading copyright scholar, for instance, argues that in a digitally connected context “it is difficult to see how ... authors can maintain the ‘exclusive right’ to their ‘writings’ that the Constitution authorizes Congress to secure” if they do not have control over individual access to works (that is, a right to control how the work is used and enjoyed). Jane Ginsburg, *From Having Copies to Experiencing Works: The Development on an Access Right in US Copyright Law*, 50 J. COPYRIGHT SOC’Y USA 113, 123 (2003).

⁶⁹ See Richard Stallman, *Some Confusing or Loaded Words and Phrases that are Worth Avoiding*, <http://www.gnu.org/philosophy/words-to-avoid.html#DigitalRightsManagement> (last visited Feb. 1, 2009).

⁷⁰ See Barbara L. Fox & Brian A. LaMacchia, *Encouraging Recognition of Fair Uses in DRM Systems*, COMM’NS OF THE ACM, Apr. 2003, at 61; Dan Burk & Julie Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 HARV. J.L. & TECH. 41, 57 (2001); Timothy K. Armstrong, *Digital Rights Management and the Process of Fair Use*, 20 HARV. J.L. & TECH 49, 82 (2006). On the copyright wars see WILLIAM PATRY, *MORAL PANICS AND THE COPYRIGHT WARS* (2009).

[W]here the Constitution imposes limits on the government’s creation of and recognition of property rights in intellectual goods, those limits apply equally to both legally and technologically delineated property. In some instances of overreaching via technological controls, the Constitution may even demand a limited self-help right, or “right to hack”, to surmount privately erected technological barriers to information that the Constitution requires to be publicly accessible.⁷¹

In other words, if the constitution (via the speech paradigm) requires that copyright law have something like fair uses or a public domain, intellectual property owners cannot expect the State to enforce their interests beyond their entitlement by enjoining individuals from breaking overreaching technological measures.⁷² An individual “right to hack” comes then as an affirmative self-help effort to recalibrate aspects of a technologically-misaligned copyright system.⁷³

To be sure, the argument is attractive as it implicitly suggests a notion of “technological democratization” that requires “expanded opportunities for people ... to participate effectively in guiding the evolving technological order”⁷⁴ that helps structure our social reality; particularly with regard to technology affecting contexts for freedom of expression. However, it faces a number of barriers that prevent it from fully materializing in the law. Namely, (1) the public/private divide, (2) indeterminacy and (3) practical limitations given contemporary forms of enforcing copyright.

First, a lot hinges on the particular incarnation of the liberal public/private divide by deciding what constitutes state action (subject to the trumping effects of the right to

⁷¹ Dan Burk & Julie Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 HARV. J.L. & TECH. 41, 52 (2001)

⁷² Burk & Cohen, *supra* at 53-54: “The use of technology to block public access to public domain elements of managed content and/or to block fair uses of such content is equivalent to the unauthorized fencing of public lands”.

⁷³ See generally, Jennifer Chandler, *Technological Self-Help and Equality in Cyberspace*, 56 MCGILL L. J. 39 (2011).

⁷⁴ See Richard Sclove, *The Nuts and Bolts of Democracy: Democratic Theory and Technological Design*, in DEMOCRACY IN A TECHNOLOGICAL SOCIETY 139 (L. Winner, Ed. 1992).

hack) and what activity is attributable to private actors. Whatever criteria we use to make this allocation will be controversial.⁷⁵ But, as with other property rights in general,⁷⁶ US courts have held that even when intellectual property rights are “created by some governmental act ... [t]he actions of the ... owners nevertheless remain private.”⁷⁷ Maybe the public imprint of state action is easier to grasp in light of a special law like the DMCA that makes illegal the particular act of “circumvention” of overreaching DRM without regard to (and beyond any claim to) underlying intellectual property rights.⁷⁸ But assuming a world without that law reveals another layer of the same problem since many courts relegate overreaching activity to the private realm of contract law. Because DRMed works come bundled with so called shrink-wrap licenses (essentially adhesion contracts) courts regularly enforce these contract-supported DRMs under the paradigm of an autonomous sphere of private transactions (even when overreaching beyond IP rights).⁷⁹ In such cases, no constitutional “right to hack” seems applicable, as courts are unwilling to muddle the liberal public/private divide. In short, at least in the United States, this seems to be a formidable barrier to recognizing such right.

⁷⁵ See eg Paul Brest, *State Action and Liberal Theory: A Case Note on Flagg Brothers v. Brooks*, 130 U PA L. REV. 1296 (1982); Robert L. Hale, *Coercion and Distribution in a Supposedly Non-Coercive State*, POLITICAL SCIENCE QUARTERLY, Vol. 38, No. 3 (Sep., 1923), pp. 470-494. See also Duncan Kennedy, *The Stages of the Decline of the Public/Private distinction*, 130 U. PENN. L. REV. 1349 (1982).

⁷⁶ “It would intolerably broaden... the notion of state action ... to hold that the mere existence of a body of property law in a State...itself amount to “state action” even though no state process or state officials were ever involved in enforcing that body of law”, *Flagg Bros., Inc. v. Brooks*, 436 U.S. 149, 160 n. 10 (1978).

⁷⁷ *S.F. Arts & Athletics, Inc. v. USOC*, 483 US 522, 544 (1987). See also *Wheaton v Peters*, 33 U. S. 591, 685 (1834) (“Congress, ... instead of sanctioning an existing right, as contended for, created it. This seems to be the clear import of the law, connected with the circumstances under which it was enacted.”)

⁷⁸ See Julie Cohen, *A Right to Read Anonymously: A Closer Look at “Copyright Management” in Cyberspace*, 28 CONN. L. REV. 981, 1024 (1996) (“[T]he civil remedies ... are not remedies for copyright infringement, but separate civil penalties tied to the act of “tampering” itself.”)

⁷⁹ See *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996); 5 WILLIAM PATRY, PATRY ON COPYRIGHT § 18:26 (and cases cited).

The second problem regards difficulties with specifying the content of this right; that is, to hack what and for what purpose? We can see the issue from the perspective of two potential right-bearers: the designer of hacking technology and the user of that technology. They might be the same person, but often they are not.

Form the *designer's* perspective we would have to ask if laws that burden that individual's design choices come within the purview of free speech. In that case we would have to consider whether computer code writing deserves constitutional attention, a cumbersome issue that is part of a larger debate about what counts as "speech".⁸⁰ Assuming it does, what follows? Not all speech acts are covered by freedom of speech values nor protected by the constitution. When they are, it often means that someone absorbs a cost of some kind, which we tolerate. In *NY Times v. Sullivan*,⁸¹ for example, the US Supreme Court established a sort of safe harbor for news publishers against libelous and defamatory actions in public discourse.⁸² In these cases, the "defamed must subsidize speakers, by allowing their reputations to be compromised to the end of broad diversity".⁸³ Similarly, a designer's right to develop hacking technology would also

⁸⁰ On the problem of what counts as speech, *see generally*, Frederick Schauer, *The Boundaries of the First Amendment: A Preliminary Exploration of Constitutional Salience*, 1117 HARV. L. REV. 1765 (2004). On the issue of whether code is speech, *see*, *Bernstein v. United States*, 176 F.3d 1132 (9th Cir. 1999) (*vacated, rehearing granted* 192 F.3d 1308 (9th Cir 1999) (because "cryptographers use source code to express their scientific ideas in much the same way that mathematicians use equations or economics use graphs...we conclude that encryption software, in its source code form and as employed by those in the field of cryptography, must be viewed as expressive for First Amendment purposes"); *Universal City Studios v. Reimerdes*, 111 F.Supp.2d 294 (SDNY 2000) ("All modes by which ideas may be expressed or, perhaps, emotions evoked-including speech, books, movies, art, and music-are within the area of First Amendment concern. As computer code-whether source or object-is a means of expressing ideas, the First Amendment must be considered before its dissemination may be prohibited or regulated. In that sense, computer code is covered or, as sometimes is said, "protected" by the First Amendment"); Lee Tien, *Publishing Software as a Speech Act*, 15 BERKELEY TECH. L. J 629 (2000).

⁸¹ 376 US 254 (1964).

⁸² Even if a public figure is defamed, the publisher of the statement (regardless of whether the statement is by another person) is not liable unless she knew that it was false or acted in reckless disregard of its truth or falsity. Erroneous and defamatory statements are tolerated "if the freedoms of expression are to have the 'breathing space' they need to survive".

⁸³ Cass Sunstein, *Free Speech Now*, 59 U. CHI. L. REV. 255, 304 (1992).

impose on copyright owners the obligation to subsidize the technology. The analogy might work if the defamed is similarly situated to the copyright owner, which would be a controversial proposition because, among other reasons, copyright owner's interests are uniquely delimited by the paradigm trio in ways that the interests of the defamed might not be.⁸⁴ But, most importantly, the analogy works only if the particular practice in question (designing circumventing technology) is connected to values like those supporting the subsidy in the defamation example (be it individual autonomy, collective self determination, or a participatory theory, for example). Otherwise we wouldn't be able to distinguish between writing code for a virus worm and code to make possible fair uses.

Similarly, from a user's perspective, a right to hack would need to explain why a *user* should access the content in the specific *format* she wants. Assuming a DRM prevents access to the content in *digital format* a user could always access works through the naturally given "analog hole".⁸⁵ In this sense, there are always alternative means to

⁸⁴ It is also difficult to compare the newspaper with the technology designer. The relationship between the technology *designer* and the technology *user* is usually different than the relationship between the *newspaper* and the individual *speaker* in the paper. It is not clear to what extent one could compare the speakers within a non-digital newspaper (whose actions are attributed to the newspaper by law), on one hand, and users of a circumvention technology, on the other, whose actions are not generally attributed to the designer (at least when dealing with untethered technologies or services (*see eg.* *Sony v. Universal*, 464 U.S. 417 (1984) where no liability against VCR developer for user's potentially infringing activity; *but cf.* *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004 (2001), liability attached to developer of a networked system that is part of an ongoing relationship between user and developer). Finally, the *Sullivan* standard applies with force to public figures, which is not necessarily applicable to copyright use (especially personal, private, use).

⁸⁵ The "analog hole" concept describes the fact that digital content must be presented to users in an analog form (like observing a TV screen with the naked eye) since humans do not perceive images and sounds digitally. Patrick Wolf, *Complementing DRM with Digital Watermarking: mark, search, retrieve*, 31 ONLINE INFO. REV. 10, 11 (2007). *See also* http://en.wikipedia.org/wiki/Analog_hole ("The analog hole (also known as the analog loophole) is a fundamental and inevitable vulnerability in copy protection schemes for noninteractive works in digital formats which can be exploited to duplicate copy-protected works that are ultimately reproduced using analog means. Once digital information is converted to a human-perceptible (analog) form, it is a relatively simple matter to digitally recapture that analog reproduction in an unrestricted form, thereby fundamentally circumventing any and all restrictions placed on copyrighted digitally-distributed work. Media publishers who use digital rights management (DRM), to

access content despite DRMs, although at a lower quality. A US court once saw it this way:

We know of no authority for the proposition that fair use . . . much less the Constitution, guarantees copying by the optimum method or in the identical format of the original. . . . [T]he DMCA does not impose even an arguable limitation on the opportunity to make a variety of traditional fair uses of DVD movies, such as commenting on their content, quoting excerpts from their screenplays, and even recording portions of the video images and sounds on film or tape by pointing a camera, a camcorder, or a microphone at a monitor as it displays the DVD movie. The fact that the resulting copy will not be as perfect or as manipulable as a digital copy obtained by having direct access to the DVD movie in its digital form, provides no basis for a claim of unconstitutional limitation of fair use. . . . Fair use has never been held to be a guarantee of access to copyrighted material in order to copy it by the fair user's preferred technique or in the format of the original.⁸⁶

Dismissing the claim as being simply about wanting access to “a preferred technique or in the format of the original” suffers from the perennial levels-of-generality problem in constitutional interpretation.⁸⁷ But this only unmask as simplistic argument that makes the “right to hack” just about accessing a “particular format” and says nothing about free speech values that a constitution embodies and, on the other hand, how does the technology (or format to which access is sought) relates to pursuing those values.

It might be that the best way to approach these question is to contextually consider the technology's *connection* to political values behind freedom of speech⁸⁸ and, in the copyright context, how that speech paradigm conditions and limits *incentive* and *property*. There is nothing particularly special about paper or asphalt. But a law banning

restrict how a work can be used, perceive the necessity to make it visible and/or audible as a "hole" in the control that DRM otherwise affords them.”)

⁸⁶ Universal Studios v. Corley, 273 F.3d 429, 459 (2d Cir. 2001).

⁸⁷ LAURENCE TRIBE & MICHAEL DORF, ON READING THE CONSTITUTION (Harvard 1991).

⁸⁸ This strategy seems to be underlying Zimmerman's proposal for a presumption in favor of reporter's choice in techniques for news-gathering at public events such as trials. Diane L. Zimmerman, *Overcoming Future Shock: Estes Revisited, or a Modest Proposal for the Constitutional Protection of the News-Gathering Process*, 1980 DUKE L. J. 641 (1980).

leafleting on the streets infringes the First Amendment because distributing information in public is a social practice so closely associated to free speech values that its prohibition is an assault on freedom of expression.⁸⁹ In this sense, when we say that leafleting is a “medium of expression” with constitutional significance, it is another way of saying that it is a “form of interaction that realizes First Amendment values.”⁹⁰ Thus, when a law forecloses “an entire medium of expression” so that it eliminates “a common means of speaking, such measures can suppress too much speech” (even if the law is neutral as to content or viewpoint).⁹¹ As suggested by Post, then, “First Amendment coverage...depends upon how the object of regulation is integrated into First Amendment media”.⁹² If, in his example, music is a medium of expression, and the government were to ban all CD players, “prohibiting CD players would materially disrupt the pattern of social relationships that comprise the contemporary medium of music”⁹³ and, thus, at a minimum would come within the ambit of the First Amendment. This reasoning would apply to “right to hack” claims by both the *designer* of the technology and its *user*. And to consider the effects of DRMs and anti-circumvention laws on speech interests, empirical questions would seem unavoidable as we would have to evaluate how the DRM restrictions on the design of particular technology (circumvention technology) or its use (to access a particular format by a user) affects expressive social practice as understood

⁸⁹ *Schneider v. State*, 308 US 147 (1939).

⁹⁰ Robert Post, *Encryption Source Code and the First Amendment*, 15 BERKELEY TECH. L. J. 713, 716 (2000). See also Robert Post, *Recuperating First Amendment Values*, 47 STAN. L. REV. 1249, 1255 (1995). Similarly, because door-to-door “distribution of circulars is essential to the poorly financed causes of little people”, *Martin v. Struthers*, 319 US 141 (1943), a prohibition of residential handbilling also offends freedom of speech.

⁹¹ *City of Laudue v. Gilleo*, 512 US 43 (1994) (regarding the prohibition on residential signs in order to minimize visual clutter).

⁹² Robert Post, *Encryption Source Code and the First Amendment*, 15 BERKELEY TECH. L. J. 713, 717 (2000).

⁹³ *Id.* at 722.

by privileged speech values.⁹⁴ A highly indeterminate task, to be sure. For one thing is to prohibit CD players generally (or printers, radios or TVs) that have primarily communicative uses, and another, more dynamic, is to prohibit technology that interferes with the murky and contextually specified triad of copyright paradigms. Again, here the right to hack faces great challenges.

A third, and I think more important limitation, is practical. Once we consider how the expressive environment gets regulated via socio-technical systems beyond the reach of any plausible right to hack, we begin to seriously doubt its practical significance.

For the expressive environment is pervasively regulated many steps removed from the media and devices where DRMs come in contact with users. Copyright enforcement increasingly depends on targeting, not potential infringers and things in their possession, but intermediaries that stand between users and copyright owners. In the process, a combination of law and technology creates opportunities for over-protection of copyright interests, readjusting the relationship between copyright paradigms eclipsing speech under property and incentives. It is precisely through intermediaries that the regulation of distributed online behavior is possible, like the examples of China, Egypt, Burma and many other countries show.⁹⁵ But we don't need to go to extremes to see this point: regulation increasingly targets *transport intermediaries* like internet service providers (ISPs), *information intermediaries* such as search engines, *financial intermediaries* like credit card companies and PayPal,⁹⁶ among others.⁹⁷ Thus, for

⁹⁴ *Id.* at 722-23.

⁹⁵ See Open Net Initiative, <http://opennet.net/>

⁹⁶ See, eg, Troy Wolverton, *N.Y. subpoenas PayPal over gambling*, http://news.cnet.com/N.Y.-subpoenas-PayPal-over-gambling/2100-1017_3-943533.html (July 12, 2002).

⁹⁷ JACK GOLDSMITH AND TIM WU, *WHO CONTROLS THE INTERNET: ILLUSIONS OF A BORDERLESS WORD* (2006).

example, when the government wants to reduce individual use of sexually explicit material, it does so through the regulation of devices and software that stand between the user and that content (requiring filters in computer terminals at public libraries).⁹⁸

This is not a feature exclusive to current digital milieu. Regulation through proxies is a common regulatory strategy, especially with regard to speech.⁹⁹ And in the copyright context, the strategy also predates digital technologies. Initially, for example, copyright law in the US was not concerned with securing owners the right to charge for personal noncommercial use of content (such as personal copying and reproduction of passages from a book, or music). It would have been too costly. As personal copying became easier and cheaper thanks to the availability of copy technologies, personal activities were encompassed within owners' rights.¹⁰⁰ The law, then, focused on those copy-facilitating *technologies* and on the increased amount of personal and potentially lucrative uses they allowed.¹⁰¹ Initially, *technologies themselves* were not generally targeted,¹⁰² at least for a while.¹⁰³ Eventually, enforcement strategies in the twentieth

⁹⁸ *United States v. American Library Association*, 539 US 194 (2003) (upholding a federal law that requires publicly funded libraries to install software in publicly accessible computers in order to filter sexually explicit material). One example of this kind of regulation is the Audio Home Recording Act of 1992. Trying to reduce the impact on the music industry of digital audio tapes (DAT), the law attempted to technologically freeze in time the material conditions of analog technology and traditional analog tapes. Thus, the Act required manufacturers of digital recording devices to encode a technological fix—a serial copy management system—into such devices to limit the amount of copies that could be made of a DAT, similar to what would normally occur with analog recording (where every generation of copies exhibit a reduction in quality). See 17 USC 1001-1010. See *Recording Industry Ass'n. v. Diamond Multimedia*, 180 F.3d 1072 (9th Cir. 1999).

⁹⁹ Seth Kreimer, *Censorship by Proxy- the First Amendment Internet Intermediaries and the Problem of the Weakest Link*, 155 U. PA. L. REV. 11 (2007). See *NAACP v. Alabama ex rel. Patterson*, 357 US 449 (1958) (invalidating requirement of membership list by the Alabama NAACP); *New York Times v. Sullivan*, 376 US 254 (1964); *Banham Books v. Sullivan*, 372 US 58 (1963).

¹⁰⁰ LAWRENCE LESSIG, *REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY* 101 (2008)

¹⁰¹ *Id.* at 103

¹⁰² Manufacturers of photocopiers were not sued; rather businesses relying on them, such as copy shops, were. *Basic Books, Inc. v. Kinko's*, 758 F.Supp 1522 (SDNY 1991); *Princeton University Press v. Michigan Document Services*, 99 F. 3d 1381 (6th Cir. 1996) (en banc); *American Geophysical Union v. Texaco*, 60 F 3d. 913 (2d Cir. 1994). Cf. *Williamson & Wilkins v. United States*, 487 F2d. 1345 (Ct. C 1973).

century shifted from attempting to catch potentially infringing users to commandeering technology design.¹⁰⁴ These dynamics get amplified in a digitally networked context. As individual online behavior is intermediated through highly vulnerable actors, they become crucial for any enforcement strategy; creating new articulations of the relationship between copyright rationales.

As far as I can see there are four major interrelated intermediary regimes in current law and practice.

(1) Secondary liability rules as they apply to tethered devices with which users experience digital works and other online services (such as peer-to-peer filesharing systems). Exposing intermediaries (or gatekeepers) to liability in order to enlist their help in enforcing normative commitments is a common strategy employed in many legal contexts. In general, these regimes develop in situations either where imposing liability on someone directly would not adequately deter misconduct or where it's costly to do so.¹⁰⁵ According to prevailing legal standards¹⁰⁶ these intermediaries are required to

¹⁰³ As the video tape recorder (VTR) litigation in the US exemplifies In *Sony v. Universal Studios*, 464 US 417 (1984), content owners targeted the technological intermediaries (VCR manufacturers) that enabled personal uses, instead of directly targeting (and thus alienating) consumers. The Supreme Court declined an invitation to impose secondary liability on manufacturers of video recording devices. Because these devices allowed consumers to watch broadcast programs at a later time while skipping ads (“time-shifting”), VTRs arguably deprived owners the opportunity to monetize home personal uses through ad revenues. Jessica Litman, *The Story of Sony v. Universal Studios: Mary Poppins Meets the Boston Strangler*, in *INTELLECTUAL PROPERTY STORIES* 358, 382 (Jane Ginsburg & Rochelle Cooper Dreyfuss, Eds. 2006).

¹⁰⁴ For example, disabling the record or fast forward buttons of the VTR were technological fixes proposed by the industry. Peter Menell & David Nimmer, *Unwinding Sony*, 95 CAL. L. REV. 941, 1018 (2006)

¹⁰⁵ Daryl Levinson, *Collective Sanctions*, 56 STAN. L. REV. 345, 348 (2003). See also, Lewis Kornhauser, *An Economic Analysis of the Choice between Enterprise and Personal Liability for Accidents*, 70 CAL. L. REV. 1345 (1982); Alan Sykes, *The Economics of Vicarious Liability*, 93 YALE L. J. 1231 (1984); Reinier H. Kraakman, *Vicarious and Corporate Civil Liability* 669 (entry 3400) at *Encyclopedia of Law and Economics*, Volume I. (Bouckaert, Boudewijn and De Geest, Gerrit, Eds. 2000), available at <http://encyclo.findlaw.com/index.html>

¹⁰⁶ If an intermediary has knowledge of infringing activity and *can take “simple measures” to prevent infringement* and fails to take steps, it could be liable. *Perfect 10 v Visa*, 494 F.3d 788 (9th Cir. 2007); *Perfect 10 v. Amazon*, 508 F.3d 1146 (9th Cir 2007).

employ technological measures that are reasonable in terms of a risk-utility balance.¹⁰⁷

But experience shows a degree of overenforcement: to the extent that gatekeepers and users have divergent interests, when selecting gatekeeping technology an intermediary will not necessarily take into account the full value of all the uses that the end-user would and will rationally select a technology that maximizes its wellbeing; that is, a technology that reduces its expected liability costs.¹⁰⁸

(2) Statutory safe harbors that condition an intermediary's immunity from secondary liability upon its compliance with certain requirements. These include (a) immediately taking down allegedly infringing material upon service of notice, (b) implementing a policy for *terminating the service* to their clients that are "repeat infringers" and (c) incorporating filtering technologies.¹⁰⁹ Currently, services like Youtube and Google, for example, are harbored under US law only if, among other things, they expeditiously reply to content owner's requests to remove allegedly infringing material from their servers or search results.¹¹⁰ The effect of this legal regime has been largely to induce overenforcement by service providers for fear of losing legal

¹⁰⁷ See e.g. Peter Menell & David Nimmer, *Unwinding Sony*, 95 CAL. L. REV. 941, 1008, 1020 (2006). Menell and Nimmer, for instance, propose a "reasonable alternative design" rule when foreseeable risks can be avoided by such design similar to products liability. Alfred Yen, has also suggested a negligence standard. Alfred C. Yen, *Sony, Tort Doctrines, and the Puzzle of Peer-to-Peer*, 55 CASE WESTERN RES. L. REV. 815, 856 (2005) ("Negligence is an effective way to analyze the contributory liability of a defendant who creates or distributes peer-to-peer technology, but not for the express purposes of causing infringement... Defendants who distribute such technology for noninfringing purposes reasonably foresee the risk of infringement associated with their behavior. Liability therefore depends on whether the defendants took reasonable precaution against the risk of infringement").

¹⁰⁸ See Assaf Hamdani, *Who's Liable for Cyberwrongs?*, 87 CORNELL L. REV. 901 (2001).

¹⁰⁹ Also known as "standard technical measures", 17 USC 512(i) which are those that "(A) have been developed pursuant to a broad consensus of copyright owners and service providers in an open, fair, voluntary, multi-industry standards process; (B) are available to any person on reasonable and nondiscriminatory terms; and (C) do not impose substantial costs on service providers or substantial burdens on their systems or networks."

¹¹⁰ 17 USC 512, *et seq.*

immunity.¹¹¹ One study found that 30% of take down notices are essentially *copyfrauds*,¹¹² that is, based on weak legal claims, and that very few people take advantage of a counter-notice procedure.¹¹³ Furthermore, copyright owners regularly send take-down notices to intermediaries about participants in file-sharing networks even if they do not share or download any content at all.¹¹⁴ Chile¹¹⁵ and Ecuador¹¹⁶ have enacted similar intermediary enforcement mechanisms.

(3) Private gatekeeping agreements between copyright owners and Internet Service Providers (ISP's). ISPs routinely incorporate a host of filtering technologies – with notorious problems of over and underinclusiveness—examining data traffic or monitoring content itself to identify copyrighted content by analyzing its features such as its metadata, digital watermarks or their actual characteristics.¹¹⁷

(4) Three-strike laws. Mechanisms where the intermediary is required to disconnect internet service after detecting repeated instances of infringement. Countries such as Taiwan, France and New Zealand have adopted legislation that would require ISP's to cut off internet access of allegedly infringing users, after a number of

¹¹¹ Mark Lemley, *Rationalizing Internet Safe Harbors*, 6 J. TELECOM. & HIGH TECH. L. J 101, 114-15 (2007).

¹¹² Jason Mazzone, *Copyfraud*, 81 N.Y.U. L. J. 1026 (2006).

¹¹³ Jennifer Urban, *Efficient Process or 'Chilling Effects'? Takedown Notices under Section 512 of the Digital Millennium Copyright Act*, 22 SANTA CLARA COMP. & HIGH TECH L. JOURNAL 621 (2006).

¹¹⁴ Michael Piatek, Tadayoshi Kohno & Arvind Krishnamurthy, *Challenges and Directions for Monitoring P2p File Sharing Networks -or- Why My Printer Received a DMCA Takedown Notice Why My Printer Received a DMCA Takedown Notice*, University of Washington Technical Report, UW-CSE-08-06-01. <http://dmca.cs.washington.edu/> (In two separate studies in 2007 and 2008 researchers introduced “users” with University of Washington IPs, such as printers, into Bit-Torrent networks to monitor their traffic. Even when these “users” did not download files, more than 400 take-down notices were received).

¹¹⁵ The law in Chile requires judicial intervention for takedown actions. Ley de Derechos de Autor de Chile, Ley 17336 2 de octubre 1970, según enmendada 4 de mayo de 2010, Ley 20435; available at <http://www.leychile.cl/Navegar?idNorma=28933&idVersion=2010-05-04>

¹¹⁶ Article 292, Ley de Propiedad Intelectual de Ecuador de 8 de mayo de 1998, disponible en <http://www.ftaa-alca.org/intprop/natleg/Ecuador/L320ind.asp>,

¹¹⁷ See Mehan Jayasuriya, et al., *Forcing the Net Through a Sieve: Why Copyright Filtering is Not a Viable Solution for U.S. ISPs* (Public Knowledge, 2009) available at <http://www.publicknowledge.org/pdf/pk-filtering-whitepaper-200907.pdf>

instances.¹¹⁸ In Mexico, three-strikes legislation was proposed yet failed for lack of support;¹¹⁹ and a proposal in Colombia was announced a few months ago.¹²⁰

In all these cases, enforcement of copyright law operates through technological systems that stand distant from the users' reach, and hence immune from any claim to hack technological protection measures. In all of them, there is a real risk of curtailing expressive activity, against which a right to hack would be powerless. And together with these indirect enforcement strategies we see a "strong moralization of the debate"¹²¹ through educational campaigns about the wrongness of piracy and, thus, the strengthening of property and incentives in a competitive struggle against claims for broader uses.

II. Technopolitics

A copyright system, then, reflects struggles to regularize and stabilize the relationship between competing dominant rationales of incentives, copyright and speech. Copyright law, doctrinally, reflects these tensions; but we also see them play out in

¹¹⁸ The most notorious case involves the French *Loi favorisant la diffusion et la protection de la création sur internet*, providing for a graduated mechanism to notify infringing users, upon content-owners' request, which, after three notices would require suspension of internet access for three months to a year. On June 10, 2009 the French Constitutional Council found the law invalid holding that cutting off internet access without judicial intervention affects the right to freedom of speech and to a presumption of innocence. It was subsequently reenacted with judicial review safeguards. See *Décision n° 2009-580 DC du 10 juin 2009*, available at <http://www.conseil-constitutionnel.fr/conseil-constitutionnel/francais/les-decisions/2009/decisions-par-date/2009/2009-580-dc/decision-n-2009-580-dc-du-10-juin-2009.42666.html>; Eric Pfanner, Kevin O'Brien, *French Anti-Piracy Proposal Undermines E.U. Telecommunications Overhaul*, May 7, 2009, <http://www.nytimes.com/2009/05/07/technology/07iht-telecoms.html>; Eric Pfanner, *French Court Defangs Plan to Crack Down on Internet Piracy*, June 10, 2009, http://www.nytimes.com/2009/06/11/technology/internet/11net.html?_r=1&hpw. See also *France Approves Crackdown on Internet Piracy*, (May 12, 2009) <http://www.nytimes.com/2009/05/13/technology/internet/13net.html>; Nate Anderson, *France passes harsh anti-P2P three-strikes law (again)*, September 15, 2009, <http://arstechnica.com/tech-policy/news/2009/09/france-passes-harsh-anti-p2p-three-strikes-law-again.ars>.

¹¹⁹ See *Gaceta Parlamentaria Año XIII*, April 21, 2010, 2997-X.

¹²⁰ Colombia proposed bill available at Carolina Botero, *Proyecto de Ley sobre infracciones al derecho de autor en Internet* (April 5, 2011) at <http://www.karisma.org.co/carobotero/index.php/2011/04/05/proyecto-de-ley-sobre-infracciones-al-derecho-de-autor-en-internet/>

¹²¹ JOE KARAGANIS, ED. *MEDIA PIRACY IN EMERGING ECONOMIES* (SSRC) (2011).

copyright technology, as it interacts with the legal system. In the process we experience *technopolitics* as “politics pursued by technological means”,¹²² of which a potential “right to hack” is just a speckle. And in this process, we not only see the embodiment of values in technologies but also, the shaping of the legal context into which these technologies are projected.¹²³

The trends here examined point to complex technological systems where a “right to hack” seems almost out of place. Whether we can jailbreak devices might be important, but relatively inconsequential. Our technopolitics, then, might have to put on hold the emphasis on individual rights to focus more on technological arrangements that help structure the incentives/speech/property environment. It might be that—as Balkin argues for the United States context—free speech doctrine is ill-equipped to address pressing problems of a networked information economy and is, thus, becoming “increasingly irrelevant to the free speech battles of the future”.¹²⁴ Instead, as he argues, “the most important decisions affecting the future of freedom of speech . . . will be decisions about technological design, legislative and administrative regulation, the formation of new business models and the collective activities of end-users.”¹²⁵

At the same time, by thinking beyond individual rights and focusing more on the expressive context we see more clearly the moral relevance of information technologies. In the end “to balance our accounts of society, we . . . have to turn our exclusive attention

¹²² Bryan Pfaffenberger, *Technological Dramas*, 17 SCIENCE, TECHNOLOGY, & HUMAN VALUES 282, 290 (1992).

¹²³ *Id.* at 290-91.

¹²⁴ Jack Balkin, *The Future of Free Expression in a Digital Age* (January 29, 2009). Pepperdine Law Review, Vol. 36, 2008. Available at SSRN: <http://ssrn.com/abstract=1335055>.

¹²⁵ *Id.*

away from humans and look also at nonhumans”¹²⁶ and see that when we delegate into technologies certain actions with normative content, these technologies sometimes feedback into humans specific prescriptions (that is, “the moral and ethical dimension of mechanisms”).¹²⁷ So, with Latour, we must “follow the path that leads from text to things and from things to texts”.¹²⁸ But accepting this reciprocal relation does not mean we must ignore that we, human architects, make crucial design choices and that we should critically evaluate those choices. In technopolitics, the moment we go from “text to things” is fundamental.¹²⁹

¹²⁶ Bruno Latour, *Where are the Missing Masses? The Sociology of a Few Mundane Artifacts*, in WIEBE BIJKER & JOHN LAW, EDS., *SHAPING TECHNOLOGY / BUILDING SOCIETY: STUDIES IN SOCIOTECHNICAL CHANGE* 225, 227 (1997).

¹²⁷ *Id.* at 232.

¹²⁸ *Id.* at 233.

¹²⁹ Flanagan, M., Howe, D. C., & Nissenbaum, H., *Embodying Values in Technology: Theory and Practice* in J. VAN DEN HOVEN & J. WECKERT (EDS.), *INFORMATION TECHNOLOGY AND MORAL PHILOSOPHY* 322 (2008) (“Obviously, anyone can be political; the question is whether it is in their capacity as designers that they are political. We hold not only that they are, but that it is the duty of good designers to embrace this dimension of their work, even if they are not always able to prevail against the tide of countervailing forces”; Langdon Winner, *Upon Opening the Black Box and Finding it Empty: Social Constructivism and the Philosophy of Technology*, 18 *Science Tech. and Human Values* No. 3 (Summer 1993) 362-78.