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COMPLEXITY AND COPYRIGHT IN CONTRADICTION

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# COMPLEXITY AND COPYRIGHT IN CONTRADICTION

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Copyright may subsist in architectural works.<sup>1</sup> The technical architecture underlying the creation and distribution of copyrightable works increasingly also defines copyright. This “architecture” of the Internet, and of digital information technology in general, has begun to substitute technical protocols for information exchange, among other things, for legal rules and standards. Particularly in contexts involving copyright law and free speech, this observation has been accompanied by the argument that engineers and others responsible for designing and implementing this “architecture” should be engaged in discourses to identify social values that could and should be embodied in the technical definitions that constitute “cyberspace.”<sup>2</sup>

This Article takes a related but different approach, arguing that any architecture, including the “architecture” of cyberspace and of copyright, embodies and projects certain values. In particular, I will argue that copyright’s architecture, by virtue of its emerging digital dimension, is “simple” in an important sense and stands in contrast to its traditional “complex” character. In Part I below I explain what I mean by these concepts and illustrate how this shift is taking place. Part II discusses some of the normative implications of this transition, using as a vehicle for analysis related work on “real world” architecture and land use planning. Part III applies the normative conclusions of Part II to the virtual architecture of copyright law. If the architectural metaphor is an appropriate one to apply to current developments in copyright law—and I argue that it is—then one need not necessarily look beyond architectural concepts to assess what is becoming of copyright. Remodeling and restoration, however, if any is needed, may require resources beyond those that copyright has traditionally sup-

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<sup>1</sup> See 17 U.S.C. § 102(a)(8) (1994) (identifying architectural works falling within scope of copyrightable “works of authorship”). An “architectural work” is “the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings.” *Id.* at § 101.

<sup>2</sup> See *infra* notes 14-17 and accompanying text.

plied. Part III therefore concludes with the argument that restoring complexity to copyright depends on an expanded recognition of the interplay between copyright and free speech.

## I. COPYRIGHT'S ARCHITECTURE

### A. *Complexity and Contradiction in Copyright*

For those who invest in and produce works of intellectual property, the law increasingly seems to be fundamentally continuous. I mean the following: copyright law rarely requires that all paths between point A (signifying, in time or space, creation of the work) and point B (signifying consumption of the work) remain under the complete and perpetual control of the creator. Producers and investors increasingly act, however, as though the law does so, or at least that it should. Under this view, anyone other than the creator cannot access, use, or consume a copyrighted work except via a seamless, unbroken path of legal form, which the creator manages.<sup>3</sup>

Networked digital technology, the electronic substrate of "cyberspace,"<sup>4</sup> is even more fundamentally continuous, in the same sense.<sup>5</sup> Digital technology physically compels the existence and parameters of at least one uninterrupted logical path between virtual

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<sup>3</sup> The scholarly perspective on the matter differs from that of the creator "community" (at least the moneyed creator community) and the attendant bar. This description is obviously intended to reflect the latter.

<sup>4</sup> Much of the analysis that follows indulges the fiction that "cyberspace" is a "place." *But see* David Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367 (1996) (arguing that cyberspace ought to be recognized as a jurisprudentially distinct place). An "architectural" analysis of cyberspace ultimately leads to an agnostic position, if not necessarily to discarding the premise altogether. *See infra* Part III.

<sup>5</sup> This characterization violates established understandings of this term in engineering and computer science communities. I use it here with both the utmost caution and the disclaimer that I do not mean to suggest that the Internet, or digital electronic computing in general, could be characterized literally as continuous. *Cf.* Curtis E.A. Karnow, *Liability for Distributed Artificial Intelligences*, 11 BERK. TECH. L.J. 147, 162 (1996) (noting the essential discontinuous nature of digital computing, from a technical standpoint, because the behavior of a digital computer system does not reliably vary in proportion to incremental changes to the parameters that define the system). In the engineering sense, analog (continuous) models describe functions that change incrementally. Digital or discrete state (discontinuous) models change in steps across a given range, rather than incrementally throughout it. Technically, modern digital electronic computers are the essence of discrete state machines. They are controlled by commands that are intelligible (to the machines) only in sequences of 1's and 0's, each binary digit representing a discrete "on" or "off" condition.

Here, however, I mean to respect the engineering definition by applying it at a higher level of abstraction, at the point where digital computers and humans intersect. I take comfort in the following, from Herbert Simon: "[A]lmost no interesting statement that one can make about an operating computer bears any particular relation to the specific nature of the hardware." Herbert A. Simon, *The Natural and Artificial Worlds*, in *THE SCIENCES OF THE ARTIFICIAL* 17 (3d ed. 1996).

material at point A and virtual material at point B.<sup>6</sup> Given point A and a distinct point B, each connected to a digital electronic network, there may be more than a single path that connects the two; any given path may be far from a straight line, and any or all such paths may have no permanent existence. Given some number of possible paths between point A and point B, however, an electronic impulse commanded to travel between them will always traverse at least one of those paths.<sup>7</sup> There is essentially no possibility, absent a bug in the system, that the impulse will “jump the tracks” and end up, unpredicted, at points C or D.<sup>8</sup>

The technical protocols that underlie this phenomenon are less important for present purposes than the logical result. The technology permits, for reasons to be described in more detail below,<sup>9</sup> the originator of the information to exercise precisely the power of continuous legal form to which the last paragraph referred. The technology is continuous in this sense because a change of input at the origin (technically enabling or disabling all or part of the information transfer) has direct, measurable effects on output conditions at the receiving end (absence or receipt of the data). Digital technology permits the creator to exercise an unprecedented, continuous level of control with respect to digitized works.

The collection of digital networks that incorporates this logical principle, known as “the Internet,” is absorbing nearly all printed, recorded, photographed, and other “expressive” matter,<sup>10</sup>

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<sup>6</sup> “Logical” is used here as a term of art to signify that, although the physical path between points A and B may be far from seamless, it is perceived as such by persons hypothetically present at each end of the transmission.

<sup>7</sup> This remains true even as one moves from circuit-switched networks, such as conventional telephone systems, to packet-switched networks, such as the Internet. In a circuit switched system, data transfer between two points is accomplished by opening a unique circuit, or direct connection, between them. In a packet-switched system, data waiting to be transmitted is broken into a number of discrete electronic impulses, or packets, each of which is routed separately to the destination. Depending on the nature of packet traffic along the relevant routes, packets may or may not travel identical routes. At the destination, packets are re-assembled and the data delivered.

<sup>8</sup> The “information superhighway” metaphor for the Internet overstates the linearity of networked data transfer but captures its determinism. Cf. Clay Calvert, *Regulating Cyberspace: Metaphor, Rhetoric, Reality, and the Framing of Legal Options*, 20 HASTINGS COMM. & ENT. L.J. 541, 556-57 (1998) (describing how the “information superhighway” metaphor for the Internet suggests linear point-to-point movement of information); *A Debate on Teaching Computer Science*, 32 COMMUNICATIONS OF THE ACM 1397 (1989) (comments of W.L. Scherlis) (noting that designers of large computer systems deliberately seek a continuity property at higher levels of abstraction).

<sup>9</sup> See *infra* notes 30-36 and accompanying text.

<sup>10</sup> According to the Copyright Act, copyright subsists in “original works of authorship.” 17 U.S.C. § 102 (1994). All of copyright law is founded on the core principle that copyright may exist in “expression” but not in “ideas.” See *Baker v. Selden*, 101 U.S. 99 (1880). The leap from copyrightability of analog form to copyrightability of digital form is accom-

whether originally produced in digital or analog form. What is not produced in digital form originally is readily and cheaply digitizable. A person who regularly produces, consumes, or otherwise interacts with such digital "information,"<sup>11</sup> is part of a growing digital culture called cyberspace, and cyberspace is now, and will continue to be, firmly embedded in the Internet. The result is that a continuous digital "architecture" of cyberspace, both literally and metaphorically, is all but ubiquitous with respect to works encompassed by copyright.

To intellectual property consumers, the existing copyright law framework in which cyberspace is developing relies at its core on assumptions of discontinuity.<sup>12</sup> I mean the following: under some circumstances, works of copyright may and should be consumed in ways that lie beyond the creator's or producer's control. Legally, discontinuities exist between legal rights and physical limits that attend such works, on the one hand, and use and reuse of those works, on the other hand. Given creation of a work at point A<sup>13</sup> and consumption or re-use of the work at point B, both applicable law and the physical construction of the work limit the extent to which the creator may constrain that reuse.<sup>14</sup> In addition, beyond legal forms, assumptions about such limits are embedded in our cultural thinking, as consumers, about rights and systems of legal protection for expressive works.

Given the power and range of digital network technology, and the threat that its continuous character appears to pose for a legal system constructed on discontinuities, scholars have argued that preserving a role for legal norms in regulating the production and distribution of expressive works may require regulating digital technology itself.<sup>15</sup> The technology of digital networks—the proto-

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plished by deeming computer "programs" to be protected by copyright and by declaring that collections of computer "data" are protectable by copyright if they are "authored," that is, subjected to at least some minimal manipulation by a human being, or an agent under human control. See 17 U.S.C. § 101 (1994).

<sup>11</sup> See *infra* note 28 and accompanying text.

<sup>12</sup> Intellectual property producers and investors may simultaneously be intellectual property consumers.

<sup>13</sup> As discussed above, this might be a point in time or a point in space.

<sup>14</sup> See 17 U.S.C. § 107 (1994) (author's rights in copyrighted works limited by fair use).

<sup>15</sup> Joel Reidenberg and Lawrence Lessig are the two scholars most closely associated with the concept of "architectural" regulation of cyberspace. See, e.g., Joel R. Reidenberg, *Governing Networks and Rule-Making in Cyberspace*, 45 EMORY L.J. 911 (1996); Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553 (1998); Lawrence Lessig, *The Constitution of Code: Limitations on Choice-Based Critiques of Cyberspace Regulation*, 5 COMM'LAW CONSP'CTUS 181, 184 (1997) ("Structures of regulation get codified in the architecture of the net, and these structures of regulation entail important values choices."); Lawrence Lessig, *The Zones of Cyberspace*, 48 STAN. L. REV. 1403 (1996). See also *infra* notes 34-38 and accompanying text.

cols that now define different modes of communication on the Internet, filters, screens, encryption technologies, and digital “content” itself—has become so powerful as a constraint on behavior that law is considerably less effective than before in influencing what individuals may and may not do with respect to digitized information. It is argued that we should explicitly affirm those values deemed significant to modern society and confirm those values in the computer code and related engineering used to construct cyberspace.<sup>16</sup>

“Architecture” in this sense includes at least (i) a collection of digital computing devices, (ii) linked electronically to form a network, (iii) which enables communication via one or more protocols, (iv) carried out in digital format, (v) which permits selectively enabling and disabling access to the network and/or to material transmitted within it. Scholars have persuasively argued that this technological architecture regulates how we interact with both the form and content of the architecture itself. Continuous technical architecture becomes, in effect, a continuous legal form. The analytic focus then concerns the relationship between the individual and the work. The issue is instrumental; the question asked is whether the individual should be granted greater access to the digital work (or less, in some cases) than the technical architecture allows.<sup>17</sup> Digital network architecture is both the instrument of regulation and the object of the individual’s behavior, and characterization of the architecture is less important than its existence, or what Professor Lessig refers to as its “plasticity,” or ability to be manipulated.<sup>18</sup> How the computer code that defines this architecture is written, and by whom, should in theory reflect social judgments about how much and what types of access to information we desire.

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<sup>16</sup> Professor Lessig, together with Professor Resnick, has analyzed digital network architecture to test the costs and benefits of implementing behavioral controls at different junctures within networks. See Lawrence Lessig & Paul Resnick, *Zoning Internet Speech: A Legal and Technical Model*, MICH. L. REV. (forthcoming 1999). As a general proposition, some network designers argue in favor of an “end-to-end” design principle for distributed computer systems, or networks. The principle suggests that the design of the network itself ordinarily should implement features of the system at the ends of the system (the user interface, for example) rather than in the system itself (communications protocols, for example). See Jerome H. Saltzer et al., *End-to-End Arguments in System Design*, 2 ACM TRANSACTIONS ON COMPUTER SYSTEMS 277 (1984); David P. Reed et al., *Commentaries on “Active Networking and End-to-End Arguments,”* IEEE NETWORK, May-June 1998, at 69.

<sup>17</sup> See, e.g., Julie E. Cohen, *A Right to Read Anonymously: A Closer Look at Copyright Management in Cyberspace*, 28 CONN. L. REV. 981 (1996) (arguing, based on First Amendment principles, in favor of a right of anonymous access to copyrighted works hosted on digital computer networks).

<sup>18</sup> See Lawrence Lessig, *Reading the Constitution in Cyberspace*, 45 EMORY L.J. 869, 877, 888 (1996).

This Article accepts the premise that there is profit in “architectural” analysis of digital computer networks.<sup>19</sup> The existing architectural analysis has limitations, however. A different model of architectural thinking opens additional analytic possibilities. In the physical world, architecture regulates not only how individuals interact with the built environment; it also regulates how we interact with each other, both in a literal, instrumental sense,<sup>20</sup> and in an important symbolic sense. One measure of the value of a building, a neighborhood, or of a designed landscape, is how the design affects its inhabitants, both by inducing changes to their behavior (or reinforcing existing behaviors), and by representing (whether by reflecting, or by trying to change) certain social values. The same is true, I suggest, with respect to digital architecture. In addition, architecture—all architecture—imposes externalities, in the jargon of economists.<sup>21</sup> The design of a structure affects not only those who inhabit (or work in) the building, but also those who

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<sup>19</sup> Architectural models abound in discussions of computer science; only the application of architectural metaphors to technological design is relatively new. The concept that a computer system has an “architecture,” in the sense that it is the product of some conscious arrangement of parts, dates from the very origins of digital electronic computing in the 1940s. “[T]he flow of instructions and data in the UNIVAC mirrored the way humans using mechanical calculators, books of tables, and pencil and paper performed scientific calculations.” PAUL E. CERUZZI, *A HISTORY OF MODERN COMPUTING* 15 (1999). The “architecture” of a roomful of punch card machines and their operators became the “architecture” of the computers that replaced them. The concept took its most lasting form in the idea of “Von Neumann architecture,” after John Von Neumann, the designer of the first stored program computer, who described the machine in terms of its logical structure (how data is stored and the manner in which the computer acts upon it) rather than in terms of its hardware configuration. *See id.* at 24; NANCY B. STERN, *FROM ENIAC TO UNIVAC: AN APPRAISAL OF THE ECKERT-MAUCHLY COMPUTERS* 181-246 (1981) (reprinting the text of Von Neumann’s “First Draft of a Report on the EDVAC,” originally distributed in 1945).

Within computer science, there has been some recent work exploring the scope of the architectural metaphor. That work is summarized *infra* at notes 82-90 and accompanying text.

<sup>20</sup> Purely from a technical standpoint, architecture may be elegant, merely functional, or awkward. Characterizing such technical architecture as “open” (in the sense that one firm’s technical design permits a second, unrelated firm to create functional and complementary designs) or “closed” may lead to important legal consequences. In *Intergraph Corp. v. Intel Corp.*, 3 F. Supp. 2d 1255 (N.D. Ala. 1998), *rev’d*, \_\_\_ F.3d \_\_\_, 52 U.S.P.Q.2d 1641 (Fed. Cir. 1999), a federal judge issued a preliminary injunction ordering Intel Corporation to continue to sell microprocessors to Intergraph, a computer manufacturer, on the ground that Intel’s chip “architecture,” coupled with Intel’s market power, rendered that architecture an “essential facility” under the Sherman Act, to which Intel was required to grant access. On appeal, the Federal Circuit vacated the injunction.

<sup>21</sup> Generally speaking, “externalities” consist of those classes of transactional consequences not accounted for in cost/benefit assessments attributed to parties to a transaction. *See* Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111 (1999) (suggesting that the third party benefits of intellectual property are central, not peripheral, features of an information economy); Mark A. Lemley & Eugene Volokh, *Freedom of Speech and Injunctions in Intellectual Property Cases*, 47 DUKE L.J. 147 (1998) (arguing that the “collateral benefits” idea that limits prior restraints in First Amendment cases should be extended to copyright cases); C. Edwin Baker, *Giving the Audi-*

live and work nearby, and those in adjacent communities. Characterization and evaluation of those externalities is essential to determining not only the merits of individual design choices (for example, should the power to configure content filters lie with the Internet user, with the Internet service or content provider, and/or with network facilities?), but the value of the architecture as a whole. In the digital environment, questions concerning information architecture tend to be limited to “good” software and “bad” software.<sup>22</sup> The broader question also needs to be asked. What is “good” (or at least permissible) architecture, and what is “bad” architecture? Cyberspace is not only being constructed; it is being zoned in a sense that relates to zoning of the physical world.<sup>23</sup> How do we assess “good” zoning in the virtual world, and what is “bad” zoning? If discontinuity is a social good that should be preserved, how can it be preserved, amid growing technological continuity? Or should discontinuity be abandoned, in whole or in part, as a measure of copyright’s architecture? Responses to these questions require considering not only “architecture” in a limited engineering sense, which looks to the effectiveness of digital technology in accomplishing particular ends, but also in a social sense, which includes its symbolic content and its effect on relations between and among creators, consumers, and others.

To the extent that we possess a normative theory of copyright’s architecture (though not framed as such), it arises primarily from the uneasy relationship between copyright law and the First Amendment.<sup>24</sup> Rather than work from the First Amendment to

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ence *What It Wants*, 58 OHIO ST. L.J. 311, 319, 346-66 (1997) (cataloging positive and negative externalities associated with production of “media content”).

<sup>22</sup> This may be best exemplified by Professor Lessig’s aphorism, “PICS is the devil.” See Lawrence Lessig, *Tyranny in the Infrastructure*, WIRE, July 1997, Vol. 5, No. 7, at 96. “PICS” stands for “Platform for Internet Content Selection,” a technological labeling standard that “content providers,” network service firms, and individuals each may use to implement rating schemes for sites accessible via the World Wide Web. Professor Lessig and others have argued that PICS enables large-scale private censorship, a result with potentially far-reaching consequences that follows not from social or political debate but from engineering specifications.

<sup>23</sup> See *infra* notes 96-108 and accompanying text.

<sup>24</sup> The most recent full attempt to ground copyright in democratic theory, including the First Amendment, is Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283 (1996). The historic and philosophic bases for Professor Netanel’s argument have been questioned. See Lloyd L. Weinreb, *Copyright for Functional Expression*, 111 HARV. L. REV. 1149 (1998). There is increasing agreement, however, that the First Amendment represents an important doctrinal check on the expansion of copyright. See, e.g., Lemley & Volokh, *supra* note 21 (arguing that requests for preliminary injunctions in copyright cases should be scrutinized carefully, as are requests for preliminary injunctions in “free speech” cases). Cf. Lloyd L. Weinreb, *Fair Use: The Donald C. Brace Memorial Lecture*, 67 FORDHAM L. REV. 1291 (1999) (arguing that all of copyright law may be better understood through fair use, where copyright protection is absent, than through positive copyright protections).



ward copyright, I propose to work from copyright toward the First Amendment, using the architectural metaphor as a foundation.<sup>25</sup> Theories of “good” building and land use design, in the sense that both allow space for, and combinations of, continuousness and discontinuousness, or for complexity and contradiction (in Robert Venturi’s famous phrase)<sup>26</sup> suggest lessons for the design of information space, and more particularly for copyright law.<sup>27</sup> The next section elaborates on existing architectural models of cyberspace, as a means of describing more precisely the terms and concepts to which this analysis refers.

### B. *Architecture and Infrastructure*

Some definitions and clarifications are in order. The legal implications of an architecture of “information” encompass not only all that lies within copyright, but also interests and material addressed by the First Amendment, the Fourth Amendment, securities law, commercial law, and banking law, among other things, as well as other intellectual property disciplines.<sup>28</sup> The shape and structure of the physical and virtual “worlds” governed in part by copyright law have important consequences for these other branches of “information law.” For present purposes, in other words, “information space” or “cyberspace” comprises the collec-

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The last Part of this Article attempts to link the architectural analysis with different threads of First Amendment jurisprudence.

<sup>25</sup> Elsewhere, I have noted the limitations of copyright doctrine as such in responding to new forms of information production and distribution. See Michael J. Madison, *Legal Ware: Contract and Copyright in the Digital Age*, 67 *FORDHAM L. REV.* 1025 (1998).

<sup>26</sup> See ROBERT VENTURI, *COMPLEXITY AND CONTRADICTION IN ARCHITECTURE* (1966). The continuousness of digital network architecture stands in contradiction to the discontinuity, or Venturi-like complexity, that has characterized copyright law. See *infra* notes 51-53 and accompanying text.

<sup>27</sup> Copyright by statute and tradition has always explicitly been framed, at least in part, in terms of tensions between “private” (more or less, “continuous”) and “public” (more or less, “discontinuous”) uses of information and expression. See Keith Aoki, *Authors, Inventors and Trademark Owners: Private Intellectual Property and the Public Domain*, 18 *COLUM.-VLA J. L. & ARTS* 1, 34-71 (1994).

<sup>28</sup> In July 1999, the National Conference of Commissioners on Uniform State Laws approved the Uniform Computer Information Transactions Act (“UCITA”), the successor to the controversial project to draft Article 2B of the Uniform Commercial Code. UCITA propounds commercial rules to govern exchanges of interests in “information,” “informational rights,” and “informational content.” See *UCITA*, <[http://www.law.upenn.edu/bll/ulc/fnact99/1990s/UCITA\\_99.htm](http://www.law.upenn.edu/bll/ulc/fnact99/1990s/UCITA_99.htm)> (National Council of Commissioners on Uniform State Laws, draft adopted at NCCUSL Annual Conference, July 23-30, 1999). Even if these terms are applied primarily to computer software, the term “information” itself flattens distinctions among different communities and institutions that create and consume works of “information” differently. See JAMES BOYLE, *SHAMANS, SOFTWARE & SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY* 1-5, 28-32 (1996); Phil Agre, *Institutional Circuitry: Thinking About the Forms and Uses of Information*, 14 *INFO. TECH. & LIBR.* 225 (1995). When viewed in a sense related to the argument presented below, UCITA simplifies a complex world.

tion of physical and virtual information phenomena intertwined with law. It should be noted, however, that the “space” with which this Article is concerned includes not only the physical and virtual space characterized by the presence of these phenomena<sup>29</sup> but also that characterized by their absence. Analyzing the architecture of a place, such as cyberspace, connotes analyzing not only the relevant things and people themselves, but also the distances between and among them.

Digital computer network architecture, the substrate of cyberspace, has physical, virtual, and conceptual embodiments. Physically, this phrase refers to the computer hardware linked by cables, connectors, and wireless digital signals, that constitutes the physical manifestation of the Internet and related computer networks.<sup>30</sup> It also refers to the computer software protocols, or communications standards, that enable the various pieces of hardware and software to communicate with one another, or to exchange signals in ways that both the sending device and the receiving device comprehend the same signal in the same way. Digital architecture includes computer software that is written to be compatible with these protocols, so that a person (or a machine) who uses that software may create (or receive) a work in a form that others on the network perceive in the way that the creator intended. Physically, this, and all other software, amounts to a collection of electronic impulses. Virtually, these impulses represent computer code created and managed by both humans and machines. Operationally, such software may be designed not only to facilitate communication between and among networks, but to constrain it, by limiting the ability of certain computer users to access certain works. In its virtual sense, “architecture” refers to information works themselves, created in a digital format. These may include further computer software programs; data files, such as text, image, and/or sound; or combinations of executable computer code (i.e., “programs”)<sup>31</sup> and data, such as the Java and Jini products developed by Sun Microsystems. However such architecture is defined, its digital nature—that is, its definition in terms of bits and bytes, binary ones and zeros signifying

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<sup>29</sup> Their presence would include the legal and physical attributes and consequences of a book, software program, or website, as well as those of a user, reader, or consumer of a copyrighted work.

<sup>30</sup> This would include, for example, everything from desktop computers to servers, mainframes, routers and switches, and the processors, memory devices, and drives that constitute them.

<sup>31</sup> See 17 U.S.C. § 101 (1994) (“A ‘computer program’ is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.”). Copyright law protects such programs as copyrightable works and ordinarily does not protect mere data, or aggregations of fact on which such programs operate.

“on” and “off” conditions in the digital computing environment—is irreducible. At present, our physical world is divided into digital and analog (non-digital) models.

At its conceptual core, and as the last section noted, I contend that this architecture, whether constituted at all, or only at some of these levels, is, by design, continuous. The purpose of the entire structure is to enable the creation, transmission, receipt, and reproduction of digital signals entirely within the hardware and software frameworks that define the network, to do so in a way directed entirely by the creator or producer of a given work, and to do so on an error-free basis. Only the information authorized by the creator is delivered to the consumer. Only the information requested is delivered. Interruptions of any kind, whether in the flow of electrons that constitute data transmission, in power supplies that feed the machines, or in the beams or electrical signals used to “read” or “write” data, are fatal, from a physical standpoint. For example, as I “surf” the Internet and “visit” a website, my computer establishes an intricate but conceptually continuous link to a host computer (or computers) on which the computer code comprising that website resides.<sup>32</sup> The host delivers a copy of that code directly to my machine. In so doing, it may electronically (i.e., digitally, and therefore continuously) collect certain information about my machine. Exchange of any type of digital information in a digital computer network involves a similar, if only brief, direct connection between originator and consumer.<sup>33</sup>

The originators of “architectural” analyses of digital technology for legal purposes grasp the exclusionary capabilities of this technology in two senses. First, digital architecture excludes law. Looking primarily at constitutional law, Professor Lessig has argued that in digital networks, computer code defines the architecture, and the architecture, not law, defines what is possible.<sup>34</sup> Professor Reidenberg argues that standards framed and maintained by digital technology and communication networks form a “lex informatica,” a modern updating of medieval “lex mercatoria,”

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<sup>32</sup> The digital character of the signal means, as noted above, that this link is not continuous in a physical sense. It is nonetheless conceptually continuous, in that either or both the human sender and the human recipient reasonably perceive the existence of a direct, unbroken connection.

<sup>33</sup> The connection may not consist of a single, direct line. The Internet is “packet switched,” that is, network transmissions are broken into discrete electronic “packets” that are individually transmitted, along potentially diverse routes, then electronically re-assembled at their common destination. Packets may be lost en route, possibly leading to failure of the system to complete the data transfer. But such unpredictability, or discontinuity, is a flaw, rather than a feature, of the system.

<sup>34</sup> See Lawrence Lessig, *The Zones of Cyberspace*, 48 STAN. L. REV. 1403, 1410 (1996).

or law merchant, that policymakers should encourage.<sup>35</sup> In copyright law, the most optimistic expression of this exclusionary power of digital technology comes from Professor Bell. He suggests that producers of copyrighted works who wish to capture the full benefit of digital network technology that shields copyrighted works from unauthorized use should be permitted to do so, so long as they forego the protections of copyright law itself.<sup>36</sup> Digital computer architecture potentially creates an alternative regulatory universe, one that stands outside of, and distinct from, the conventional universe of legal forms.<sup>37</sup>

Second, digital architecture refines and extends the ability of information producers to exclude unwanted individuals and access. In this sense, digital architecture facilitates what some scholars, and the Supreme Court, have characterized as the “zoning” of information space.<sup>38</sup> Digital technology permits the use of filters and related technology to parse the Internet into “open,” or freely accessible areas, and “closed,” or restricted areas. Other access limitations preserve closed digital networks that may, or may not, be connected to the Internet. A variety of software tools exist that enable producers of digitized works to selectively enable and disable access to those works on an individual basis, depending on the individual’s consent to terms interposed by the producer or, increasingly, to the individual’s participation in a technological scheme that regulates such terms, including payment and access. Lawyers may be most familiar with Westlaw and Lexis, both of which use password protection together with combinations of “shrinkwrap” and “clickwrap” contract forms in guarding access to both their proprietary networks and to their Internet-based services. Corporate intranets and supplier networks based on the Internet similarly rely on password protection and software that grants “server”

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<sup>35</sup> See Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553, 578-92 (1997).

<sup>36</sup> See Tom W. Bell, *Fair Use v. Fared Use: The Impact of Automated Rights Management on Copyright’s Fair Use Doctrine*, 76 N.C. L. REV. 557 (1998). Professor Bell’s analysis of so-called “trusted systems,” or technologies to regulate access to copyrighted works maintained on digital networks, understates the extent to which a system of copyright ought not only to permit but to encourage un-consented reuse of expressive works—that is, fair use. See 17 U.S.C. § 107 (1994) (codifying the “fair use” doctrine); Cohen, *supra* note 17, at 1003-19 (describing the civil liberties implications of such technologies).

<sup>37</sup> See ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 123-136 (1991) (describing a taxonomy of social controllers); Lessig, *supra* note 18.

<sup>38</sup> See Lessig, *supra* note 18, at 883-96; Henry H. Perritt, Jr., *Property and Innovation in the Global Information Infrastructure*, 1996 U. CHI. LEGAL F. 261, 323-24 (foreseeing existence of open and closed architectures side by side); Maureen O’Rourke, *Fencing Cyberspace: Drawing Borders in a Virtual World*, 82 MINN. L. REV. 609, 701-04 (1998) (predicting evolution of Internet into open, closed areas); *Reno v. American Civil Liberties Union*, 521 U.S. 844, 886-91 (1997) (O’Connor, J., concurring in part and dissenting in part).

access only to authorized "client" computers. Encryption software enables any of us, in theory, to create a private, closed zone of our own, with respect to whatever works and communications we choose to "protect."<sup>39</sup>

In adopting architectural and physical space analogies, the scholarship described above has not escaped the limitations of the engineering on which digital networks are based. It shares a premise that the architecture may be modified, or technologically accessorized, to achieve particular constitutional, commercial, or copyright goals. The focus in some cases, is on the relationship between the individual and the work. In other cases, the focus is on the relationship between the work and the network. In both, however, the argument is instrumental; its object is access to the work itself.

In other words, the Internet may be engineered to increase the conceptual proximity of reader and text (unconditional access), to distance the reader from the text (no access), or to manage conditions under which the reader may access the text. The design may influence all three, depending on the reader and the text. The network may facilitate the exchange of trade-related information, discourage its exchange, manage conditions for its exchange, or all three. This is not architecture in any conventional sense. This is engineering, the design of structures and systems to achieve particular ends more economically or efficiently. Asking how effectively digital architecture implements certain "values"<sup>40</sup> is a sophisticated method of asking how effectively a network achieves whatever goals are set for it.<sup>41</sup> The exclusionary characteristics of digital networks, which give them regulatory strength in human terms, emanate from their infrastructure, not their architecture.

Architecture in the built environment connotes more. Architecture is not only a means to an end, but an end in itself.<sup>42</sup> Archi-

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<sup>39</sup> See A. Michael Froomkin, *The Metaphor is the Key: Cryptography, The Clipper Chip, and the Constitution*, 143 U. PA. L. REV. 709 (1995) (describing the need for cryptographic technology in a variety of settings).

<sup>40</sup> See *supra* note 15 and accompanying text.

<sup>41</sup> These might include, for example, speed, capacity, ease of use, ease of maintenance, backward compatibility, or transparency.

<sup>42</sup> See John Nivala, *Saving the Spirit of Our Places: A View on Our Built Environment*, 15 UCLA J. ENVTL. L. & POL'Y 1, 11 (1997):

Most of us identify with man-made structures, with a built environment. These structures then become the carriers of our culture, ordering our world, giving us common symbols, integrating us as individuals into a visible and meaningful environment. The structures provide a physical framework for daily use and an associational framework connecting us to the history, ideology and civic systems of our culture.

*Id.*

ecture values the aesthetics of the design. Is the design interesting, challenging, appealing? On what grounds? Architecture considers not only the relationship of the individual to the thing, and the effectiveness of the thing in accomplishing the purpose intended, but also the relationship of individual to individual (and group to group) within the context of the built environment. Architecture has symbolic and representational purposes and effects; buildings and built environments have meanings that reflect and shape human experience.<sup>43</sup> Capturing the full power of architectural analysis of digital technology requires incorporating these broader themes.

### C. *Architectural Regulation of Copyright "Space"*

Analysis of contemporary digital architecture requires revisiting analyses of historic "architectures" of information creation and exploitation and related law. Current interest in regulatory architecture in cyberspace and elsewhere may be attributable largely to the fact that in most fields, and particularly in copyright, traditional technological architecture was both relatively static and safely distinct from positive legal architecture. Legally speaking, the architecture of copyright is and was its positive law, coupled with underlying public policies. The Constitution permits Congress to enact a copyright statute.<sup>44</sup> In the current version of the Copyright Act,<sup>45</sup> Congress defines the subject matter of copyright and defines what, within that subject matter, may be copyrighted.<sup>46</sup> The Copyright Act states those rights that the owner of a copyright may exercise.<sup>47</sup> It states limitations on those rights.<sup>48</sup> It states when copyright owners may be compelled to relinquish control of

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<sup>43</sup> See Robert C. Ellickson, *Controlling Chronic Misconduct in City Spaces: Of Panhandlers, Skid Rows, and Public-Space Zoning*, 105 YALE L.J. 1165 (1996) (ordering of public spaces as necessary and appropriate to shape desired forms of human interaction); John Nivala, *Constitutional Architecture: The First Amendment and the Single Family House*, 33 SAN DIEGO L. REV. 291, 310-13, 319-22 (1996) (describing the distinctiveness of architecture as conveying meaning).

<sup>44</sup> See U.S. CONST. art. I, § 8, cl. 8.

<sup>45</sup> 17 U.S.C. § 101 - 1101 (1994).

<sup>46</sup> Copyright protection exists only with respect to original works of authorship that are fixed in a tangible medium of expression. See 17 U.S.C. § 102 (1994); *Feist Publications, Inc. v. Rural Tel. Service Co., Inc.*, 499 U.S. 340 (1991) (holding that originality requirement is constitutional, not merely statutory); *Baker v. Selden*, 101 U.S. 99 (1880) (holding that copyright protection extends only to expression, not to underlying facts).

<sup>47</sup> The owner of a valid copyright possesses the rights to reproduce, distribute, publicly perform, and publicly display the copyrighted work, and to create derivative works. See 17 U.S.C. § 106 (1994).

<sup>48</sup> For example, the "fair use" of a copyrighted work is not an infringement of copyright. See 17 U.S.C. § 107 (1994). The sale of a particular copy of a copyrighted work extinguishes the copyright owner's rights in that copy. See 17 U.S.C. § 109 (1994).

their works.<sup>49</sup> It states circumstances under which state law may not protect or grant rights concerning works that lie within the subject matter of copyright.<sup>50</sup> Underlying all of copyright law, at least in principle, is the public policy proposition that statutory intellectual property protection is needed in order to provide otherwise absent mechanisms for authors and creators to earn a return on their creative endeavors. One way or another, copyright provides security against various forms of intellectual thievery. By providing this security, copyright law encourages the development and exploitation of works of intellectual expression.

Historically, and to a degree still today, that positive legal architecture existed side by side with, but distinct from, a physical architecture of copyrighted works regulated by the law. Today, protectable copyrighted works have to be “fixed” in a tangible medium of expression.<sup>51</sup> Copyright in a work has never existed, as a practical matter, in the absence of a thing in which the work was fixed.<sup>52</sup> Moreover, the list of things in which copyrightable mate-

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<sup>49</sup> For example, the Copyright Act specifies terms for compulsory licensing of non-dramatic musical works. See 17 U.S.C. § 115 (1994).

<sup>50</sup> See 17 U.S.C. § 301 (1994). Scholars contend, and courts sometimes agree, that not only does the Copyright Act pre-empt conflicting state law, but the Constitution also forbids the enforcement of certain state-created rights concerning copyrighted works. See Madison, *supra* note 25, at 1130 & n.434.

<sup>51</sup> See 17 U.S.C. § 102 (1994).

<sup>52</sup> Strictly speaking, this is a statement about federal copyright law. “Tangible medium of expression” is the framework of the 1976 Copyright Act. The conceptual categories of earlier federal copyright law differed from those of the modern statute. Their effect—statutory copyright protection for works that existed in an identifiable tangible form—was, if anything, more pronounced. Prior to 1976, federal copyright protection attached to “published” works, and more specifically to published works that were accompanied by a proper copyright notice. Circumstances of publication and the nature of an adequate notice provoked litigation. On the whole, these dual requirements produced a world of “things” embodying copyrighted works that lies comfortably within the world of copyrightability under the 1976 Act. See Robert A. Kreiss, *Accessibility and Commercialization in Copyright Theory*, 43 UCLA L. REV. 1, 22-26 (1995). The historical basis for the physicality of copyrighted works may lie in American copyright’s origins in promoting the progress of scientific knowledge. See U.S. CONST. art. I, § 8, cl. 8; Weinreb, *supra* note 24, at 1202-03. It may have been a matter of convenience. “[C]opies were easy to find and easy to count, so they were a useful benchmark for deciding when a copyright owner’s rights had been unlawfully invaded.” Jessica D. Litman, *Revising Copyright Law for the Information Age*, 75 OR. L. REV. 19, 36 (1996). The idea of the copy as an actionable event may lie beyond considerations of efficiency and constitutional text. See Thomas F. Cotter, *Pragmatism, Economics, and the Droit Moral*, 76 N.C. L. REV. 1, 7-9 (1997) (noting self/thing dichotomy in Kantian and Hegelian philosophy that underlies many European intellectual property regimes).

Before 1976, states had the power to protect unpublished works via common law copyright, and common law copyright remains at least conceptually alive under the current Copyright Act with respect to works *not* fixed in a tangible medium of expression. See David W. Melville & Harvey S. Perlman, *Protection of Authorship Through the Law of Unfair Competition: Right of Publicity and Common Law Copyright Reconsidered*, 42 ST. LOUIS L. J. 363 (1998); CAL. CIV. CODE § 980 (West 1982); *Estate of Hemingway v. Random House, Inc.*, 23 N.Y.2d 341 (1968). See also Ralph S. Brown, Jr., *Unification: A Cheerful Requiem for Common Law Copyright*, 24 UCLA L. REV. 1070, 1073-77 (1977) (describing types of works for which only common law copyright was available, prior to 1976, even though they may have been em-

rial could be embodied was limited to begin with, and it changed only slowly over time. Set aside digital versions of copyright works. A moment's thought, without glancing at the copyright statute, yields only a handful of potentially copyrightable formats: written or printed matter, sound recordings, photographs, motion pictures, painting and sculpture. New technologies have challenged how copyright law handled divisions between, and overlaps among, these categories (and this summary is not exhaustive). The categories themselves, to the extent that they have grown in number, rarely have done so to a degree that challenged the idea of an essentially discontinuous technological architecture of expressive information.<sup>53</sup>

The meaning of this physical architecture of copyright, in terms of its implicit message for social interactions of various types, was and is fairly straightforward. First, the law itself is a construct distinct from the physical object that embodies the copyrighted work.<sup>54</sup> A book containing a copyrighted text has no regulatory import from a copyright standpoint until and unless the relevant provisions of copyright law are applied to it. The book ordinarily may be bought, sold, torn up, or thrown across the street with no copyright consequence. If copyright law is applied to each of those acts, each one takes on a new meaning, one that is generated and carried into effect by the law.

Next, physical objects embodying copyrighted works have reasonably well-defined and identifiable boundaries. If the principal purpose of the law is to ensure that unauthorized reproduction of the copyrighted work does not occur, the physical boundaries inherent in most physical objects ensure that detection of reproduction is usually relatively straightforward.<sup>55</sup> Before, there was one book or LP; after, there were two. Those boundaries give relatively clear notice to potential pirates or infringers because they are in

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bodied in some tangible form). Professors Melville and Perlman note that the significance of common law copyright declined prior to 1976 as technology expanded the means of fixing expression, and they argue that the doctrine should have limited significance today.

<sup>53</sup> Jessica Litman argues that copyright law has adapted to technological change in this century awkwardly at best, at least in the sense that legislative changes have derived more from interest-group politics than from rational deliberation on copyright policy. See Jessica D. Litman, *Copyright Legislation and Technological Change*, 68 OR. L. REV. 275 (1989). A different perspective on copyright and technological change is reflected in PAUL GOLDSTEIN, *COPYRIGHT'S HIGHWAY: THE LAW AND LORE OF COPYRIGHT FROM GUTENBERG TO THE CELESTIAL JUKEBOX* (1994).

<sup>54</sup> See David Nimmer et al., *The Metamorphosis of Contract into Expand*, 87 CAL. L. REV. 17 (1999).

<sup>55</sup> Detection of infringement is hardly costless, but the cost traditionally has consisted at least as much of locating the infringing copy and prosecuting the infringer as it has of identifying the copy as infringing.



fact making a second physical copy, and the act of doing so typically involves some meaningful quantum of expense.<sup>56</sup> One usually cannot create something from nothing. The creation of something, in a copyright context, triggers an inquiry into the legitimacy of the creation.

Third, the physicality of traditional copyrighted works creates a distinct boundary between the creator or consumer of the work, and the work itself.<sup>57</sup> Copyrightable expression may exist in the creator's mind, but it does not earn legal protection until it is physically embodied in some distinct object. The separateness of person and work concretizes the central analytic task of intellectual property policy (what is to be protected, and why?), because it creates a discrete object of analysis—the work—for which the several tangible forms serve as proxies. We meaningfully ask, “Do we want to ensure that authors of books obtain a return under copyright law that subsidizes the production of books to a socially desirable degree?” because “books” is a meaningful category of thing distinct from authors who produce them. Similarly, a consumer (reader) of books meaningfully asks, “To what extent may I copy or otherwise reuse this book under applicable copyright law?” because the reader recognizes the tangible boundaries between herself, as actor, and the book itself, on which she acts. The physical boundaries between reader, work, and author enable us to ask these questions separately, by identifying the nature and the scope of the rights necessary to ensure an author's incentive to create the work, on the one hand, and to protect the reader's access to the work on the other hand. The two questions necessarily intersect, but they are neither practically nor necessarily indistinct.

Fourth, the very existence of the several traditional methods of fixing copyrightable works creates and maintains a substrate of information diversity or pluralism within the world of copyright. Except at a substantial cost, books, sound recordings, photographs, and motion pictures are not readily substituted for one another.<sup>58</sup> Absent a technology of cheap and quick substitutability, the physi-

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<sup>56</sup> The cost of the first copy typically is far greater than the cost of each successive copy, so the second effect is less pronounced than the first.

<sup>57</sup> A corollary of this proposition is that there is a meaningful distinction, for any particular work, between the author and the consumer.

<sup>58</sup> “Substituted” is used here in a vernacular or non-economic sense, in that transforming a work from one format into another is not a simple matter. The technology exists to transform analog books into sound recordings or images, for example, but doing so is expensive. In economic terms, the substitutability of different formats concerns the shape of their respective demand curves.

cal diversity represented by these forms has been an essential feature of information space.

In the terms outlined above,<sup>59</sup> these characteristics of the technological architecture of copyright historically signified and/or consisted of one or more forms of discontinuity—distinctions, breaks, barriers, tensions, and even inconsistencies between and among physical and social constructions of the relevant environment. The author was distinct from the reader, from the original of the work, and from the law. The original was distinct from the copy. Each copy was distinct from the other. The separate rights provided by the law were distinct from each other, and the physical limitations of works meant that readers' rights were distinct from those of the author. The meaning of copyright law today, what one might call copyright space, or the architecture of copyright, emerges from those discontinuities. Copyright law identifies and bridges (or, at times, consciously fails to bridge) relevant gaps among the limitations of the technology of creating copyrighted works, the goals of individuals and institutions that create, consume, and distribute such works, and whatever public policy choices society is held to have made. The dichotomy between unprotectable ideas and protectable expression isolates one such gap. The fair use doctrine highlights a second gap. Provisions for compulsory licensing of music compositions and cable television signals illustrate two occasions where copyright law bridges such gaps, rather than enforces them. Where the law places such bridges, and where it refuses to place them, sends important messages about the strengths and weaknesses of authors' and readers' interests in different contexts, about institutional politics, about the history of copyright law, the values of free expression, "progress," and about a host of other things. Our understanding and appreciation of those things is made possible by the architecture described above. More directly, the architecture expresses them.

Over time, the notion of such a discontinuous architectural baseline has become deeply embedded in the presumptions that govern our thinking about information, and about copyright problems in particular. From time to time, judicial rhetoric has suggested that the essence of the copyright system is the ability of the rights holder to permit or proscribe each and every proposed use of the work.<sup>60</sup> Scholars have observed that in judicial practice,

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<sup>59</sup> See *supra* notes 3-9 and accompanying text.

<sup>60</sup> See, e.g., *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 549-55 (1985); *Gilliam v. American Broad. Cos., Inc.*, 538 F.2d 14, 21 (2d Cir. 1976). See also David Nimmer, *Brains and Other Paraphernalia of the Digital Age*, in 1998 ENTERTAINMENT, ARTS, AND

however, holders have never possessed such absolute rights. Copyright law and policy is routinely and correctly characterized as reflecting a "balance" between the interests of creators and consumers.<sup>61</sup> The contours of that balance have never been, and perhaps cannot be, described with precision. The very existence of incompatible physical formats for copyrighted works means that the nature of any discontinuities differs from format to format, and work to work. The law, accordingly, varies in seemingly odd ways.<sup>62</sup>

Digits simplify. Digital technologies of information development and exploitation collapse these separate technological and legal architectures, as well as the gaps that characterize copyright's architecture. Legal regulation of copyrighted works and technological regulation of information are increasingly indistinct. "Shrinkwrap" licenses for computer software become "clickwrap" licenses for software, websites, and possibly most any kind of information that is delivered in digital form.<sup>63</sup> Information in the public domain (or eligible for reuse via fair use) is collected and delivered in digital format and made available so long as the recipient consents to restrictive terms or has appropriately configured the receiving device. Content-rating systems and filtering technologies shield viewers and customers from material that governments

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SPORTS LAW, ALI-ABA COURSE OF STUDY MATERIAL, *available in* WESTLAW, SC47 ALI-ABA 29, at \*44-50 (critiquing the proposition that computer technology somehow has enabled a novel, non-statutory author's "right to control" every disposition of the copyrighted work).

<sup>61</sup> See Julie E. Cohen, *Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management,"* 97 MICH. L. REV. 462 (1998); *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 479 (1984) (Blackmun, J., dissenting) ("The fair use doctrine must strike a balance between the dual risks created by the copyright system: on the one hand, that depriving authors of their monopoly will reduce their incentive to create, and, on the other, that granting authors a complete monopoly will reduce the creative ability of others."); *Stewart v. Abend*, 495 U.S. 207, 228 (1990) ("[A]lthough dissemination of creative works is a goal of the Copyright Act, the Act creates a balance between the artist's right to control the work during the term of the copyright protection and the public's need for access to creative works.").

<sup>62</sup> The difficulty of developing and applying fair use standards on a case-by-case basis highlights this conundrum. See 17 U.S.C. § 107 (1994); *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994) (illustrating transformative use); *Leibovitz v. Paramount Pictures Corp.*, 137 F.3d 109 (2d Cir. 1998) (approving parody photograph of the actress Demi Moore); *Dr. Seuss Enters., L.P. v. Penguin Books USA, Inc.*, 109 F.3d 1394 (9th Cir. 1997) (disapproving parody of works of children's author). See also *Madison*, *supra* note 25, at 1099-1105 (describing failure of courts to articulate a unified vision of fair use). Some look at gaps in law and technology as raw material for transaction cost analysis. See, e.g., *American Geophysical Union v. Texaco Inc.*, 60 F.3d 913 (2d Cir. 1994) (suggesting that where functioning markets for derivative uses exist, such uses are less likely to be considered "fair"). Such reasoning assumes the truth of the proposition disputed here, namely, that the point of copyright architecture is merely to operate at some specified level of efficiency. See Cohen, *supra* note 61, at 504-15.

<sup>63</sup> See *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996) (approving use of shrink-wrap license so long as "user" is given at least minimal advance warning of the existence of a license).

and/or content providers deem objectionable. One need no longer interpret copyright law to determine the limits of uses of copyrightable material. Digital technology imposes such limits automatically.<sup>64</sup> Moreover, boundaries identifying “original” and “reproduction” (or “one iteration” and “two iterations”) are disappearing. A copyrightable computer program may be distributed on a floppy disk, then installed on a computer hard drive. To “use” the program, the user copies the code to the computer’s memory. Has the user thus “copied” the program? Yes, in the sense that a mechanical reproduction has occurred. No, in the sense that a permanent usable second iteration of the program may not exist side by side with the first. Is the user then an infringer? Some courts have said yes.<sup>65</sup> What then of technology that appears to permit operable combinations of executable computer code (copyrightable programs) to move from computing device to computing entirely electronically, leaving little or no electronic footprint on any device’s hardware? Do such transmissions involve potentially infinite illegal copying, or no copying at all? Unmoored to any physical substrate, such technology undermines divisions between tool (as an extension of the self) and copyrightable expression. A person who uses a pen or typewriter to create a novel can easily distinguish between un-copyrightable tool and copyrightable product. A person who uses a word processing program in a stand-alone computer may be able to distinguish tool (program) from product (data). Until the product is printed out, the two are essentially indistinguishable, and in any event the tool itself is copyrightable. As technology advances, data and program merge. Code is code. Where, in a digital world, does the “original” contribution of an author begin and end?<sup>66</sup>

The ubiquity and commonality of this “bit-ness” highlights the final new characteristic of digital information architecture: its sameness.<sup>67</sup> Text, sounds, images, and even textures are technologically substitutable. If everything is just bits of data, the choice of words, melody, or graphic representation is merely the selection of a different mechanism for converting bits to human-recognition.

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<sup>64</sup> Digital technology did not lead to the invention of such efforts privately to restrict access to copyrighted material, but it makes such efforts (maddeningly, or happily, depending on one’s perspective) effective.

<sup>65</sup> See, e.g., *MAI Systems Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993).

<sup>66</sup> The point here is not to engage a post-modern debate about the persistence of “authorship.” The point is pragmatic. Digitization and network technologies are seamless to a degree that we are losing the ability to meaningfully attach copyright law to some phenomena and not to others.

<sup>67</sup> See *supra* note 28 and accompanying text; Pamela Samuelson, *Digital Media and the Changing Face of Intellectual Property Law*, 16 RUTGERS COMP. & TECH. L.J. 323, 333-34 (1990).

ble form.<sup>68</sup>

What has been a defining characteristic of copyright space, in sum, and what is disappearing in the transition to cyberspace, is the complexity of form and meaning represented in older legal and technological architectures. Copyright's architecture is complex.<sup>69</sup>

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<sup>68</sup> Obsolescence of digital formats should not be overlooked. A program written in a certain computer language cannot be compiled into object code by a computer that cannot read that language. A data file created in a given format can be read only by a device capable of reading that format. If the device disappears, the file is rendered useless, even if it is nominally in (ubiquitous) digital form. Here, there is an arguable discontinuity, embedded in the structure of digital design. Witness the ongoing struggles of librarians, historians, and archivists in dealing with older file and media formats. Inability to copy digital information from a SyQuest tape cartridge to an Iomega zip cartridge, to move material from a mini-computer's disk pack to a floppy disk, or to read an Adobe .pdf file using Microsoft's Word for Windows inhibits reproduction and distribution of copyrighted (and other) material, and it complicates management of information within a relevant space. See, e.g., Susan S. Lukesh, *E-Mail and Potential Loss to Future Archives and Scholarship or the Dog That Didn't Bark*, FIRST MONDAY, Vol. 4, No. 9 (Sept. 6, 1999) <[http://firstmonday.org/issues/issue4\\_9/lukesh/index.html](http://firstmonday.org/issues/issue4_9/lukesh/index.html)>. Other dimensions of simplicity and complexity, however, are far less affected by such shifts in format. Moreover, in an unregulated networked market for digital goods and services, format differences should be greatly reduced, or eliminated, over time. Similar arguments apply to differences among digital communications protocols and hardware and software "platforms." There are good reasons to expect increasing convergence of a variety of technical standards among digital information networks. See Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998). There are also good economic and social reasons to welcome that convergence. But the argument for complexity in copyright depends on more than differences in format. What the next Part develops, however, is the argument that such standardization and simplification also imposes costs, which can be understood in an "architectural" framework.

<sup>69</sup> Complexity, of course, is a complex subject, and by labeling copyright space "complex," I mean neither to be precise nor to exhaust the possible meanings of that term. Jeffrey Stempel, for example, wrote recently that "[C]omplexity," as legal and social scholars have used the term, appears to be a bubbling cauldron of many ingredients." Jeffrey W. Stempel, *A More Complete Look at Complexity*, 40 ARIZ. L. REV. 781, 786-87 (1998). Referring to complex litigation, Professor Stempel identifies nineteen dimensions for assessing "complexity," including dimensions shaped by the character of the parties, the forum, the issues, the law, the facts, the advocates, and the factfinder. See *id.* at 787-800. "Complexity theory" is a booming enterprise in scientific research, as an effort to identify order and patterns in seemingly random or chaotic phenomena. Efforts by legal scholars to apply varieties of complexity theory to law include: David G. Post & David R. Johnson, *Chaos Prevailing on Every Continent: Towards a New Theory of Decentralized Decision-Making in Complex Systems*, 73 CHI-KENT L. REV. 1055 (1998); Edward S. Adams et al., *At the End of Palsgraf, There is Chaos: An Assessment of Proximate Cause in Light of Chaos Theory*, 59 U. PITT. L. REV. 507 (1998); Thomas Earl Geu, *Chaos, Complexity, and Coevolution: The Web of Law, Management Theory, and Law-Related Services at the Millennium*, 65 TENN. L. REV. 925 (1998) (Part I) and 66 TENN. L. REV. 137 (1998) (Part II); Hope M. Babcock, *Democracy's Discontent in a Complex World: Can Avalanches, Sandpiles, and Finches Optimize Michael Sandel's Civic Republican Community*, 85 GEO. L.J. 2085 (1997); Vincent Di Lorenzo, *Complexity and Legislative Signatures: Lending Discrimination Laws as a Test Case*, 12 J. L. & POL. 637 (1996); J.B. Ruhl, *The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and Its Practical Meaning for Democracy*, 49 VAND. L. REV. 1407 (1996).

Efforts to grasp the complexity of "complexity" nevertheless bedevil the natural sciences. See STEPHEN JAY GOULD, *FULL HOUSE: THE SPREAD OF EXCELLENCE FROM PLATO TO DARWIN* 202-03 (1996):

What do we mean when we say that a thing is more complex than something else? Several criteria fit our vernacular sense, depending upon the context. Complexity has morphological, developmental, and functional aspects. A junk

Cyberspace is simple. For the reasons explained more fully in the next Part, I suggest that in architectural terms, that disappearance represents a social harm. In Part III, I attempt to reconcile the architectural assessment that follows with existing intellectual property law and policy.

## II. CONTINUOUSNESS AND COMPLEXITY IN REAL SPACE, OR LEARNING FROM TELEGRAPH AVENUE

Evaluating the architecture of cyberspace, be it simple or complex, requires a set of tools that the legal system mostly lacks. Outside the First Amendment, to be discussed further in the next Part, there is little precedent in American jurisprudence for normative assessments by public institutions of the aesthetic and cultural qualities of the built environment.<sup>70</sup> The National Environmental Policy Act ("NEPA") purports to require that the federal government take aesthetic impacts into account when taking any significant discretionary action.<sup>71</sup> Courts have proved re-

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heap . . . may be morphologically very complex (in consisting of so many highly varied and independent parts) but functionally quite simple (just glop for a landfill). On the other hand, what is functionally simple for us might be quite complex to other users—in this case, to the seagull who must distinguish all the little bits while searching for morsels of food.

*Id.* at 202. Professor Gould describes a measure of complexity that approximates the sense in which this Article proceeds:

The complexity of a system is generally acknowledged to be some function of the number of different parts it has, and of the irregularity of their arrangement. Thus, heterogeneous, messy, or irregularly configured systems are complex, such as organisms, automobiles, compost heaps, and junk yards. Order is the opposite of complexity. Ordered systems are homogeneous, redundant, or regular, like picket fences and brick walls.

*Id.* at 203 (quoting Dan W. McShea, *Evolutionary Change in the Morphological Complexity of the Mammalian Vertebral Column*, 47 *EVOLUTION* 730, 731 (1993)).

<sup>70</sup> "Land" as the foundational metaphor for and concern of rights in private property arguably provides an inappropriate baseline for this entire analysis. Within the environmental law paradigm, which intellectual property scholars have been urged to consider, see James Boyle, *A Politics of Intellectual Property: Environmentalism for the Net?*, 47 *DUKE L.J.* 87 (1997), far different consequences follow from using water as foundation, rather than land. See Carol M. Rose, *Joseph Sax and the Idea of the Public Trust*, 25 *ECOLOGY L.Q.* 351 (1998) (crediting Professor Sax with this idea); Barton H. Thompson, Jr., *Water Law as a Pragmatic Exercise: Professor Joseph Sax's Water Scholarship*, 25 *ECOLOGY L.Q.* 363 (1998). Recent efforts to attack Congress's extension of the term of copyright, see The Sonny Bono Copyright Term Extension Act of 1998 ("CTEA"), Pub. L. No. 105-298, 112 Stat. 2827, have incorporated both the law and the rhetoric of the "public trust" doctrine from water law. See Richard A. Epstein, *Congress's Copyright Giveaway*, *WALL ST. J.*, Dec. 21, 1998, at A19. A lawsuit challenging the constitutionality of the CTEA is making its way through the judicial process. See *Eldred v. Reno*, 74 F. Supp.2d 1 (D.D.C. 1999). Land law supposes exclusive interests held by private parties; water law supposes shared interests. Architectural complexity may be more easily reconciled with a legal regime based on the latter. Cf. Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 *MINN. L. REV.* 129 (1998).

<sup>71</sup> See 42 U.S.C. § 4331(b)(4) (1995); 40 C.F.R. § 1508.8 (1998) ("Effects includes ecological . . . aesthetic, historic, cultural, economic, social, or health, whether direct, indirect,

luctant to apply NEPA's environmental impact statement requirement to projects where solely aesthetic or cultural impacts are involved, on the ground that such impacts are too subjective to permit effective judicial supervision of agency decision-making.<sup>72</sup> Consideration of non-physical effects is now in the process of being read out of the statute entirely.<sup>73</sup>

The jurisprudence of "aesthetic zoning" likewise shows that courts generally loathe second-guessing legislative and administrative assessments of the artistic or cultural "good." Such reluctance to admit law to the halls of architecture can be seen in judicial deference to decisions of architectural review boards.<sup>74</sup> Municipal zoning decisions that rely facially on aesthetic considerations are likely to pass constitutional muster on due process and equal protection grounds.<sup>75</sup> In matters of design and construction, the First Amendment is typically agnostic.<sup>76</sup> Copyright law has been unwill-

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or cumulative."); *St. Joseph's Historical Soc'y v. Land Clearance for Redevelopment Auth. of St. Joseph, Missouri*, 366 F. Supp. 605 (W.D. Mo. 1972); *Ely v. Velde*, 321 F. Supp. 1088 (E.D. Va. 1971).

<sup>72</sup> *See, e.g.*, *The Goodman Group, Inc. v. Dishman*, 679 F.2d 182 (9th Cir. 1982) (EIS required to consider aesthetic or cultural impacts only where related to impacts on physical environment); *Maryland-National Capital Park & Planning Comm'n v. U.S. Postal Serv.*, 487 F.2d 1029 (D.C. Cir. 1973); *Port of Astoria, Or. v. Hodel*, 595 F.2d 467 (9th Cir. 1979); *Morris v. Myers*, 845 F. Supp. 750 (D. Or. 1993).

<sup>73</sup> *See* *Association of Public Agency Customers, Inc. v. Bonneville Power Admin.*, 126 F.3d 1158 (9th Cir. 1997) (relying on 40 C.F.R. § 1508.14; "[E]conomic or social effects are not intended by themselves to require preparation of an environmental impact statement."); *cf.* George J. Skelly, Note, *Psychological Effects of NEPA's Threshold*, 82 COLUM. L. REV. 336 (1983) (noting reluctance of courts to apply NEPA beyond physical effects).

<sup>74</sup> *See, e.g.*, *Village of Hudson v. Albrecht, Inc.*, 458 N.E.2d 852 (Ohio 1984); *State ex rel. Stoyanoff v. Berkeley*, 458 S.W.2d 305 (Mo. 1970); *Reid v. Architectural Bd. of Review of Cleveland Heights*, 192 N.E.2d 74 (Ohio Ct. App. 1963); *State ex rel. Saveland Park Holding Corp. v. Wieland*, 69 N.W.2d 217 (Wis. 1955).

<sup>75</sup> *See* *Village of Belle Terre v. Boraas*, 416 U.S. 1 (1974); *Berman v. Parker*, 348 U.S. 26 (1954); *Village of Euclid v. Amber Realty Co.*, 272 U.S. 365 (1926); *Welch v. Swaney*, 214 U.S. 91 (1909).

Because this Court has recognized, in a number of settings, that states and cities may enact land-use restrictions or controls to enhance the quality of life by preserving the character and desirable aesthetic features of a city, . . . appellants do not contest that New York City's objective of preserving structures and areas with special historic, architectural, or cultural significance is an entirely permissible governmental goal.

*Penn Cent. Transp. Co. v. City of N.Y.*, 438 U.S. 104, 129 (1978). Recent decisions suggesting that courts may more aggressively question local zoning decisions, *see* *City of Monterey v. Del Monte Dunes at Monterey, Ltd.*, 119 S. Ct. 1624 (1999); *Dolan v. City of Tigard*, 512 U.S. 374 (1994); *Nollan v. California Coastal Comm'n*, 483 U.S. 825 (1987), do so on the implicit basis that the locus of aesthetic decision-making belongs even lower, with property owners rather than with local governments. Though *Nollan* and subsequent case law rely on the Takings Clause, there is a sense in which these decisions may enable greater architectural and cultural diversity. *See infra* note 173 and accompanying text.

<sup>76</sup> *See* *City Council of Los Angeles v. Taxpayers for Vincent*, 466 U.S. 789 (1984) (restrictions on signs on public property); *Metromedia, Inc. v. City of San Diego*, 453 U.S. 490 (1981) (billboards); *Linmark Assocs., Inc. v. Township of Willingboro*, 431 U.S. 85 (1977) (for sale signs). *But see* *City of Ladue v. Gilleo*, 512 U.S. 43 (1994) (sign ordinance imper-

ing to substitute judicial or legislative determination of artistic merit for those of the market. Identifying a work as “expressive” is necessarily a function of copyright law,<sup>77</sup> so judges and legislators cannot avoid aesthetic accountability altogether. They can try, however, and the law formally approves of the effort. “The threshold question when fair use is raised in defense of parody is whether a parodic character may reasonably be perceived. Whether, going beyond that, parody is in good taste or bad does not and should not matter to fair use,” wrote the court in *Campbell v. Acuff-Rose Music Inc.*<sup>78</sup> More bluntly, wrote one court, “judges make fools of themselves pronouncing on aesthetic matters. But artistic originality is not the same thing as the legal concept of originality in the Copyright Act.”<sup>79</sup>

Part I argued that architecture is an important measure of cyberspace, and, equally, an important measure of copyright law. If that is so, it is not sufficient to declare that the law institutionally ought to avoid taking the measure of that architecture. Law and public policy regarding building and land use design may plausibly avoid substantive aesthetic choices if there are not, in fact, credible guides for selecting among different versions or visions of the good. Copyright law, particularly as it is affected by computer technology, does not want for avowedly normative objectives. In the next Part, I make the case for choosing among them. In this Part, I argue that to the extent that an architectural metaphor has motivated the design of computer systems, the purpose and result of its application has been to enforce a discipline of design efficacy and simplicity. As to the effect of that discipline on computer system design as such, I am in no position to suggest that those goals are inappropriate. Instead, I offer a critique of the assumption that the architectural metaphor should be so limited in its application

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missibly burdened political speech); Nivala, *supra* note 42 (arguing that regulation of the exterior appearance of single family houses should be subject to “strict scrutiny” under the First Amendment).

<sup>77</sup> See Alfred C. Yen, *Copyright Opinions and Expressive Theory*, 71 S. CAL. L. REV. 247, 298 (1998):

Courts seemingly recognize the pitfalls of aesthetic reasoning, and then adopt legal interpretations of copyright designed to avoid those pitfalls. However, familiarity with aesthetic theory shows that courts are essentially swapping one set of aesthetic premises for others in response to the facts of particular cases.

*Id.*

<sup>78</sup> 510 U.S. 569, 582 (1994).

<sup>79</sup> *Gracen v. Bradford Exchange*, 698 F.2d 300, 304 (7th Cir. 1983). See also *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 251 (1903) (Holmes, J.) (“It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations, outside of the narrowest and most obvious limits.”).



to the ramifications of computer design for legal systems. Architecture may be sensibly viewed as a vessel of, rather than merely an object of, values and policies represented by law, and architectural values themselves can be seen increasingly to stand on complexity rather than simplicity. In the next Part, I suggest that this architectural criticism can be reconnected with legal doctrine in ways that help us understand copyright as well as cyberspace.

A. *The Elements of Computing Style: The Aesthetics of Digital Design*

Neither the logic of the architectural metaphor nor the distinction between simple and complex values has been lost on those whose primary concern is to consider computer system design as such, rather than law. For the most part, however, even where aesthetic values have been placed front and center, computer scientists have been resolute in their defense of design simplicity, both descriptively and normatively.

David Gelernter, for example, who may be the most forceful public advocate of “good” design for computer systems and related artifacts, argues that “[p]ower married to simplicity equals machine beauty. This beauty equation is the most fundamental in science and technology; it underlies all the others.”<sup>80</sup> He continues:

[M]achine beauty is the driving force behind technology and science. It has been crucial to the development of computing; it has been at the core of nearly every major breakthrough in the field; and it is the ultimate guarantee of success with the public.<sup>81</sup>

This view of the aesthetics of computer design has its detractors,<sup>82</sup> and it depends, as it must, on accepting one of several possible levels of abstraction in thinking about computers.<sup>83</sup>

Nonetheless, to the extent that computer scientists have applied more explicit architectural models to the design of computer

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<sup>80</sup> DAVID GELERNTER, *MACHINE BEAUTY: ELEGANCE AND THE HEART OF TECHNOLOGY* 4 (1998).

<sup>81</sup> *Id.* at 9.

<sup>82</sup> See, e.g., Neal Stephenson, *In the Beginning Was the Command Line*, (visited June 11, 1999) <<http://www.cryptonomicon.com/beginning.html>>. Stephenson is highly critical of the simplification of the computing environment wrought by symbol and icon-based interfaces. For a similar critique of modern cityscapes, see ADA LOUISE HUXTABLE, *THE UNREAL AMERICA: ARCHITECTURE AND ILLUSION* (1997).

<sup>83</sup> See *supra* note 5 and accompanying text; Herbert A. Simon, *The Architecture of Complexity*, in *THE SCIENCES OF THE ARTIFICIAL* 215 (3d ed. 1996) (“How complex or simple a structure is depends critically upon the way in which we describe it. Most of the complex structures in the world are enormously redundant, and we can use this redundancy to simplify their description.”).

systems and software, their analyses tend closely to track the core idea—the power and virtue of simplicity—found in these quotations. Several of the contributors to Terry Winograd’s *Bringing Design to Software*,<sup>84</sup> for example, draw analogies between building design and software design, including Winograd himself. At most, however, these arguments encourage applying to software what the authors understand to be the virtues and values of “classical” architecture, epitomized by the three Vitruvian “pillars”: firmness, commodity, and delight.<sup>85</sup> The Vitruvian connection turns out, then, to consist of little more than an appeal to sound engineering practices. “Firmness, commodity, and delight,” the alleged classical architectural values, are interpreted as meaning software that is useful, functional, and bug-free.<sup>86</sup>

A handful of computer scientists take the metaphor a half-step further, suggesting that explicitly aesthetic considerations should play a role in systems and software design.<sup>87</sup> These analyses, too, seem constrained by the functionality of computer systems and

<sup>84</sup> BRINGING DESIGN TO SOFTWARE (Terry Winograd, ed.) (1996).

<sup>85</sup> See Mitchell Kapor, *A Software Design Manifesto*, Terry Winograd & Philip Tabor: *Profile: Software Design & Architecture*, John Rheinfrank & Shelley Evenson, *Design Languages*, Peter Denning & Pamela Dargan, *Action-Centered Design*, all in WINOGRAD, *supra* note 84. Vitruvius was a first-century Roman writer who idealized Greek architecture; he is cited in these essays for epitomizing values to which good design aspires, such as simplicity, consistency, and symmetry. The Vitruvian “triad,” described in the text, underlies a conceptual structure that views beauty in architecture as a singular, rational, one-dimensional condition. Cf. DOUGLAS HOFSTADTER & THE FLUID ANALOGIES RESEARCH GROUP, *FLUID CONCEPTS AND CREATIVE ANALOGIES: COMPUTER MODELS OF THE FUNDAMENTAL MECHANISMS OF THOUGHT* 40 (1995) (“More than anything, such universal but famously elusive essences as simplicity, consistency, symmetry, balance, and elegance seemed to be the driving forces behind an ability to make sense of patterns. All the rest was an irrelevant complexity having to do with knowledge.”).

<sup>86</sup> Kapor, *supra* note 85, at 5. Steven Johnson draws an explicit analogy between the iconography of the personal computer interface and norms of urban planning in *INTERFACE CULTURE: HOW NEW TECHNOLOGY TRANSFORMS THE WAY WE CREATE AND COMMUNICATE* (1997), but he draws the same functionalist conclusion. Johnson believes that the digital environment complements the best of urban living: “The Internet is once again allowing strangers to interact with one another, though this time without the violence and the drudgery of the Industrial Revolution.” *Id.* at 65. Digital computing, in other words, offers the benefits of a complex urban aesthetic, with none of its costs. As the following Section argues, eliminating the risk also eliminates the vitality, both symbolically and literally. See also Stephenson, *supra* note 82. Johnson’s Internet, like Winograd’s software, appeals to the functionalist premise that seamless software is better software. See also Saltzer, *supra* note 16; Reed, *supra* note 16.

<sup>87</sup> Notable in this regard is James O. Coplien, who has promoted applying to software the pattern-based architectural theories of Christopher Alexander. See *Geometry In Code*, (visited July 9, 1999) <<http://www.bell-labs.com/cgi-user/NatureOfOrder/NatureOfOrder?GeometryInCode>>; James O. Coplien, ed., *Re-evaluating the Architectural Metaphor: Towards Piecemeal Growth*, IEEE SOFTWARE, SPECIAL ISSUE ON ARCHITECTURE AND ORGANIZATIONS, Sept. 1999. Alexander, in turn, relies on a modern version of the Vitruvian pillars, arguing that the aesthetic “good” in architecture depends on symmetry, hierarchy, and pattern. See CHRISTOPHER ALEXANDER, *A TIMELESS WAY OF BUILDING* (1979); RICHARD P. GABRIEL, *PATTERNS OF SOFTWARE: TALES FROM THE SOFTWARE COMMUNITY* (1996) (analyzing computer programs using Alexander’s ideas).

software; little more than lip service is paid to the symbolic and representational aspects of architectural theory. James Coplien, who applies the work on patterns and hierarchy of architect Christopher Alexander, argues that software design should consider not only the functionality of each separate design element in isolation but should reap the benefits (simplicity, derived from the conscious use of patterns across programming elements or objects) of considering software structures as a whole.<sup>88</sup>

If computer scientists have difficulty escaping the functionalism of their discipline, at least one architect who has ventured into this territory grasps some of the implications of the connection between function and symbol in software. William Mitchell, Dean of the School of Architecture and Planning at MIT, argues:

[T]he social superglue of necessary proximity between performers and audience is losing its old stickiness, and the traditional architectural types and social conventions (going to the theater, cheering for your local team in the ballpark) that we associate with performance are coming unstuck. Speech, music, scenes, and text can now be transmuted into bits and entered into the network almost anywhere. These bits can be decoded to create a performance wherever and whenever a spectator chooses to plug in. Established distinctions between producers and consumers of entertainment (reified by the forms of theater and stadium construction) are breaking down. Soon, all the world will be an electronic stage.<sup>89</sup>

Mitchell's agenda is descriptive, not normative, but he captures the sense in which computer "architecture" fails to display the traditional representational and symbolic functions of an architecture of a true place. The summary above of the work of Gelernter, Winograd, and Coplien suggests that in place of those traditional functions, designers of modern computer architecture aspire at most to durable functionality, justified in aesthetic terms by appeals to "classical" simplicity.<sup>90</sup>

### B. *Law Without Order: Complexity in the Urban Environment*

The balance of this Part tenders the argument that a full ac-

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<sup>88</sup> See James O. Coplien, *Idioms and Patterns as Architectural Literature*, IEEE SOFTWARE, Jan. 1997, at 36.

<sup>89</sup> WILLIAM J. MITCHELL, CITY OF BITS: SPACE, PLACE & THE INFOBAHN 65 (1995).

<sup>90</sup> The art historian George Hersey argued persuasively that modern interpreters err when they characterize Vitruvius as having written primarily in functional terms and that Vitruvius himself recognized the important symbolic aspects of Greek architecture. See GEORGE HERSEY, THE LOST MEANING OF CLASSICAL ARCHITECTURE (1988).

count of architectural and planning theory offers the possibility of a different vision, one in which complexity, rather than simplicity, is the architectural analogy best suited to the architecture of cyberspace, and of copyright.

An architectural aesthetic that calls for complexity, by almost any definition, suggests urbanism. One that contrasts simplicity with complexity, or that implicitly values disorder, suggests the teaching of post-modern architectural and planning criticism, and specifically that of Robert Venturi and his colleagues.<sup>91</sup> Denise Scott Brown, Venturi's partner, has laid out a philosophy of urban planning that specifically rejects the notion that the design of buildings and spaces can be separated from their social context.<sup>92</sup> That is, how the constructed environment reflects and shapes the human interaction that occurs within it lies at the core of the planner's task. "Urban design may be defined as design of the connections between events or objects, rather than the events and objects themselves."<sup>93</sup> Rather than design limited to public sphere or private function, urban planning should focus on the relationship between the two concepts. Or perhaps three concepts. The planning universe is divided into private, public, and civic spheres. "Public" refers to buildings and spaces providing shared resources that serve private needs such as shopping malls, streets, and public parks. "Civic" places and spaces describe shared needs and purposes, such as governmental structures, and museums.<sup>94</sup> Planning should address the appropriate forms and roles not only within each realm, but between and among them, taking into account

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<sup>91</sup> Venturi himself disdains the "post-modern" label. See, e.g., *VSBA*, (visited Feb. 5, 1999) <<http://www.vsba.com/home/bottomleft.html>>; <<http://www.vsba.com/home/bottomleft2.html>>. The label is unimportant for present purposes. Venturi and Denise Scott Brown are the best known proponents of design and planning theory that embraces conflict of various types.

<sup>92</sup> Herbert Simon expresses a related point when he argues that simple computer systems appear complex because they are intended to represent complex social environments. See Herbert A. Simon, *The Natural and Artificial Worlds*, in *THE SCIENCES OF THE ARTIFICIAL* 16 (3d ed. 1996). Simon's real point, however, differs from mine: Simon is encouraging the development of techniques for representing (complex) social structures in (simple) artificial environments, a task that is (among other things) the central tenet of research on cognitive science (sometimes known as artificial intelligence). Cf. Hofstadter, *supra* note 85. In my view, steps toward this goal are inherently reductive, and thus eliminate values that exist only in the context of complexity.

<sup>93</sup> Denise Scott Brown, *The Public Realm: The Public Sector and the Public Interest in Urban Design*, in *URBAN CONCEPTS* 21, 26 (Andreas C. Papadakis, ed. 1990).

<sup>94</sup> See *id.* at 21-22. Interestingly, Scott Brown argues that there are few examples in the United States today of genuine commons, though that term is frequently heard in the context of contemporary debates about the operation of intellectual property law. See, e.g., Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on the Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354 (1999).

both the context and an overall view of the city.<sup>95</sup> This suggests, in turn, that the design choices inherent in implementing such a view inevitably will, and should, both reflect social and political choices and will inform them. Implementing a complex relationship among private, public, and civic features of a landscape becomes a social good:

Defining architectural problems as broadly as we would urban problems will lead, we hope, to buildings that complexly serve and express their uses, their communities, and the aspirations of their times. This is nothing new, good architecture has always done this, and the city, by contract or analogy, has always provided a point of departure and a proving ground.<sup>96</sup>

Urban plans to uplift whole communities may lack appeal to some, but the normative social and psychological impulses that lie beneath Scott Brown's vision are clear. Urban life is stimulating and challenging, and though in the physical world its attractions ought not to be imposed on us all, we all ought to at least recognize its benefits. Professor Frug's excellent analysis, *The Geography of Community*, picks up where Scott Brown's philosophy leaves off.<sup>97</sup> The essence of urbanism lies in what he describes as "engagement with others."<sup>98</sup> This core value comprises four particular benefits. First is social differentiation without exclusion, the formation of a multiplicity of group affinities and intermingling of those groups.<sup>99</sup> Second is variety, a diversity of activity and experience both within and among neighborhoods.<sup>100</sup> Third is eroticism, the pleasure and excitement that derive from being confronted with the unusual and the surprising.<sup>101</sup> Fourth is publicity, the idea that in a public space, one is exposed to "other" cultures, peoples, and opinions.<sup>102</sup>

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<sup>95</sup> The public realm, especially, deserves "complex" treatment.

[I]t should evolve from its context. It should be tough and durable to accommodate the intense use it will receive over the years. It should relate in a complex way to the private uses, structures and people it serves and should be scaled to these at all levels, from the private doorstep to the regional freeway network. . . . The public realm's design should be more general than the set of functions that it must support at any one time; it is a basket to dip hands into, rather than a glove that fits snugly. A public realm that satisfies civil criteria for toughness and abundance will have a degree of ability to withstand unforeseen change.

Scott Brown, *supra* note 93, at 26.

<sup>96</sup> *See id.* at 51.

<sup>97</sup> Jerry Frug, *The Geography of Community*, 48 STAN. L. REV. 1047 (1996).

<sup>98</sup> *See id.* at 1051.

<sup>99</sup> For this analysis, Professor Frug draws on IRIS MARION YOUNG, JUSTICE AND THE POLITICS OF DIFFERENCE (1990). *See* Frug, *supra* note 97, at 1051.

<sup>100</sup> *See* Frug, *supra* note 97, at 1051.

<sup>101</sup> *See id.*

<sup>102</sup> *See id.* This sense of "publicity" may be a necessary incident of each of the first three

Together, Professor Frug argues that these four values are normatively valuable, from psychological, sociological, and political standpoints. Psychologically, public variety serves as a coping mechanism, both individually and socially, defining and clarifying borders of affinity groups and individual identity.<sup>103</sup> Sociologically, heterogeneity stimulates learning, creativity, experimentation, and growth. Homogeneity, by implication, at least, does none of these things, and arguably it impedes them.<sup>104</sup> Politically, community diversity decreases suspicion and fear of strangers, which tends to undercut political forces that might otherwise promote homogeneity and "sameness."<sup>105</sup>

Professor Frug argues that cities should adopt strategies to cultivate and reproduce the city's traditional form of human association: teaching people to interact with the unfamiliar, with strangers, and how to interact with the "other" without being compelled to "know" them. Within real estate (or genuine architectural) law, the remedy for social welfare losses due to zoned and socially-produced "bland-ness" is to direct public attention to the values of discontinuousness, richness of context and experience, and opportunities for experiencing the political, economic, cul-

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values of urbanism. Urban life and its benefits, in the sense that Professor Frug intends, depend on maintaining a meaningful distinction between public and private values, activities, and spaces.

<sup>103</sup> See *id.* at 1052-54.

<sup>104</sup> Professor Frug's argument depends on the assumption that the benefits of creativity, experimentation, and growth, exceed, in the aggregate, the aggregate of any costs suffered. That is, as a member of a heterogeneous urban neighborhood, I receive a benefit from the creativity expressed by each of my neighbors (both in a net increase in my inventory of creative goods and in a decrease in my costs of acquiring such goods independently). I suffer a cost, as well, because living among a heterogeneous group means a potential loss of psychic stability and increased use of time and resources managing routine tasks of daily living. Justin Hughes has made the same point more forcefully with respect to interests of copyright consumers in preserving stable meanings for cultural artifacts. See Justin Hughes, "Recoding" *Intellectual Property and Overlooked Audience Interests*, 77 TEX. L. REV. 923, 940-966 (1999). Order and consistency may bring needed civility to the community. Yet an overly ordered community may be stifling, even cultish. This dynamic is described and analyzed in two recent books on the development of the town of Celebration, Florida, sometimes noted as a model for a "new urbanism." See ANDREW ROSS, *THE CELEBRATION CHRONICLES: LIFE, LIBERTY AND THE PURSUIT OF PROPERTY VALUES IN DISNEY'S NEW TOWNS* (1999); DOUGLAS FRANTZ & CATHERINE COLLINS, *CELEBRATION, U.S.A.* (1999).

In the hypothetical above, my ability to move from community to community affects both my experience of this dynamic and the character of each community. Post and Johnson suggest that if decision-making regarding provision of public goods (including intellectual property) remains localized, then reducing the costs of inter-community transfers should optimize the overall level of public good production. See Post & Johnson, *supra* note 69, at 1087-88. It might, also, lead to singularly homogenous communities. Since much of the benefit attributable to "creativity" and "experimentation" lies in the benefits externalized by the creators of "information," as intellectual property rules permit creators to capture a greater portion of the benefit associated with their creations, the diversity and vitality of these communities may be reduced.

<sup>105</sup> See Frug, *supra* note 97, at 1074.

tural, and temporal “other.”<sup>106</sup> Mix commercial, retail, residential (single family homes and multi-unit properties) and not for-profit uses. Require density. Coordinate public thoroughfares and public transit to ensure a mixture of stable residents and business-owners as well as a transient population.<sup>107</sup> The tangible embodiments of Professor Frug’s revised urban ideal are Greenwich Village, in New York City, and Telegraph Avenue, in Berkeley, California.<sup>108</sup> The diversity of uses helps to keep property values low, relative to adjacent but less densely populated, more homogeneous communities; that premise helps to ensure at least a modicum of economic diversity.

### C. *The Soul of a New Design*

This same dynamic, and many of the concepts on which Scott Brown and Professor Frug draw in outlining their urban visions, correspond to those on which architect Robert Venturi relies in his landmark exploration of building design, *Complexity and Contradiction in Architecture*.<sup>109</sup> This section can sketch only an outline of Venturi’s ideas. Almost by definition, they elude characterization in a form that resembles the “model” described by Professor Frug.<sup>110</sup> At the level of the individual structure, however, Venturi identifies and praises design that embraces complexity. His ideas thus stand in implicit contrast to those described in the first section of this Part, on computer systems and software design. Cyberspace may be a place, in a sense that corresponds metaphorically to the

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<sup>106</sup> See *id.* at 1077-79.

<sup>107</sup> See *id.* at 1091-96. Professor Frug’s other policy recommendations, that cities should coordinate with one another to structure public space and infrastructure to foster public contact with “the other,” among other things, do not necessarily follow from his description. Cities and neighborhoods can develop, implement, and enforce their own visions of the good. See Ellickson, *supra* note 43, at 1246 (arguing that judges should defer to local merchants’ and lawmakers’ decisions about regulation of behavior on public streets and sidewalks—even in Berkeley). Professor Ellickson himself is willing to accept the possibility that informal, local social coordination may not produce a diverse community, but his argument directs attention to the notion that externalities in the architecture arise equally from non-governmental as well as government sources, i.e., they are phenomena that to a significant degree not only cannot be planned, but should not be planned. See also Vicki Been, *Comment on Professor Jerry Frug’s The Geography of Community*, 48 STAN. L. REV. 1109, 1110-12 (1996) (describing urban (and suburban) homogeneity as essentially economic, based on the desire to avoid redistribution of one’s income). Valuable urban disorder may depend in part on certain economic conditions, as well as on diversity-enhancing government policies. Is it a coincidence, for example, that Greenwich Village and Telegraph Avenue lie in or near two of the most wealthy communities in the United States?

<sup>108</sup> See Frug, *supra* note 97, at 1073.

<sup>109</sup> ROBERT VENTURI, *COMPLEXITY AND CONTRADICTION IN ARCHITECTURE* (1966).

<sup>110</sup> Perhaps for this reason, Venturi’s writing, despite its tendency to opacity, has been characterized as more influential than his constructed projects. See CARTER WISEMAN, *SHAPING A NATION: TWENTIETH-CENTURY ARCHITECTURE AND ITS MAKERS* 258-67 (1998).

urban environment of the previous section. It may also (or instead) be a thing, for which the architecture of the building provides the right analogy.

I like elements which are hybrid rather than “pure,” compromising rather than “clean,” distorted rather than “straightforward,” ambiguous rather than “articulated,” perverse as well as impersonal, boring as well as “interesting,” conventional rather than “designed,” accommodating rather than excluding, redundant rather than simple, vestigial as well as innovating, inconsistent and equivocal rather than direct and clear. I am for messy vitality over obvious unity. I include the non sequitur and proclaim the duality.

I am for richness of meaning rather than clarity of meaning; for the implicit function as well as the explicit function. I prefer “both-and” to “either-or,” black and white, and sometimes gray, to black and white. A valid architecture evokes many levels of meaning and combinations of focus: its space and its elements become readable and workable in several ways at once.<sup>111</sup>

Scott Brown’s and Professor Frug’s themes—differentiation with inclusion; confrontation of strangeness and “the other”; and richness of a physical environment that supports a rich, creative polity—are clearly recognizable in Venturi’s argument. Meaning in the urban experience emerges from the juxtaposition of “like” and “other.” It recognizes and values symbol and signification, alongside function and form.<sup>112</sup> Meaning in architecture, Venturi argues, derives from the “contradiction” posed by the juxtaposition of form and content.<sup>113</sup> Venturi insists on accepting inconsistencies, including continuousness and discontinuousness, juxtaposed.<sup>114</sup> Venturi posits the need to apply similar principles to cities<sup>115</sup> through the application of the “both-and” principle to horizontal accommodation (design with reference to context) and temporal accommodation (design with reference to history and

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<sup>111</sup> Venturi, *supra* note 109, at 16.

<sup>112</sup> See ROBERT VENTURI, DENISE SCOTT BROWN & STEVEN IZENOUR, *LEARNING FROM LAS VEGAS* (rev. ed. 1977). This short book, which made the then-controversial argument that the Las Vegas “Strip” was a rich and valuable architectural landscape, introduced a distinction between a “duck” (a building that itself functions as a sign, i.e., that looks like its function), and the preferable “decorated shed” (a building that functions as a billboard, in that it can be decorated by the architect to suit whatever symbolic and/or expressive functions the designer wants). Its acceptance of the “order” of the Strip partly belies a latent ahistoricism; Paul Goldberger and Ada Louise Huxtable have both recently commented on the transformation of Las Vegas from authentic place to theme park. See Paul Goldberger, *Casinos Royale*, *THE NEW YORKER*, Sept. 14, 1998, at 72; Huxtable, *supra* note 82, at 75-88.

<sup>113</sup> See Venturi, *supra* note 109, at 20.

<sup>114</sup> See *id.* at 30, 41-44, 100.

<sup>115</sup> *Id.* at 54.



tradition). "But an architecture of complexity and contradiction has a special obligation toward the whole: its truth must be in its totality or its implications of totality. It must embody the difficult unity of inclusion rather than the easy unity of exclusion."<sup>116</sup> Though not explicitly argued as such, his book implicitly adopts a model of human culture<sup>117</sup> that is inspired by and oriented toward an ideal of an humanistic, heterogeneous, and ultimately inclusive good that both speaks to (even if it cannot reconcile) and challenges community and individual needs.<sup>118</sup> Architecture becomes

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<sup>116</sup> *Id.* at 16. Though more than thirty years old, those sentiments ring through clearly in Venturi's more recent work, particularly in the website that advertises his design firm. See *supra* note 91. Critics within architecture have accused Venturi's "nonjudgmental pluralism" of being insufficiently radical in its efforts to distinguish traditional reliance on program or function as guiding design, see, e.g., Peter Eisenman, *The End of the Classical: The End of the Beginning, The End of the End*, 21 PERSPECTA: THE YALE ARCHITECTURAL J. 154-172 (1984), as needlessly abandoning program or function, see, e.g., Kenneth Frampton, *Rappel a L'Ordre, The Case for the Tectonic*, 60 ARCHITECTURAL DESIGN 19-25 (1990), as failing to articulate a particular communitarian or civic view, see, e.g., Philip Bess, *Communitarianism and Emotivism: Two Rival Views of Ethics and Architecture*, INLAND ARCHITECT 74-83 (May/June 1993), and as being, at bottom, elitist in its perspective on and use of historical and popular sources. See Wiseman, *supra* note 110, at 260-61; sources cited *infra* at note 122. For all of that, however, Venturi's influence on modern building and urban design theory is undeniable. See Huxtable, *supra* note 82, at 180 ("[A]rchitects have rediscovered that a stair is more than a way to get from one place to another; it can be a stage, an indicator of social and cultural hierarchies, a subtle transition, or a roll of thunder. Symbol and metaphor are as much a part of the architectural vocabulary as stone and steel."); VINCENT SCULLY, *ARCHITECTURE: THE NATURAL AND THE MANMADE* 206 (1991).

<sup>117</sup> Economists might substitute the phrase "social welfare."

<sup>118</sup> Critics of Venturi's built designs argue that all of this is easier said than done. This criticism may not be surprising. If the creativity and complexity to which this Part refers are, primarily, public goods, then it is unfair to expect that an architect, who works almost exclusively on commission, to implement his own values at the expense of those of the client. One may assume, in many if not most cases, that the client, like the neighborhood resident in footnote 104 *supra*, is bearing the costs of creativity and experimentation but reaping few of the associated benefits. Where the architect can internalize those benefits (perhaps because the client is willing to accept the inability to capture them), or the surrounding community suffers few of the costs imposed by a non-standard solution (or recognizes "costs" as benefits, instead), the as-built structure is more apt to reflect the "creative" idea. Architect Philip Bess argues:

The . . . more pertinent argument is whether individual buildings are to be designed with a concern for and deference to the larger formal order of the city, and whether this concern is *itself* another of architecture's internal goods. For if it is, it necessarily implies communal constraints upon the autonomy of architects to pursue their formal concerns. Or, to put it another way, the formal concerns highly specific to the architectural community will themselves be informed by other concerns specific to a larger community of which the architect is (perhaps) a member. If, however, such concern and deference to the city are *not* one of architecture's internal goods, then the physical form of the city will exhibit not communal concerns but, rather, the particular formal concerns of individual architects and the economic and status concerns of their patrons—as, increasingly, it does today. It is, therefore, whether architecture is or is not necessarily conceived with reference to some larger urban formal order that determines whether it is to be understood as civic or autonomous. In today's world, one cannot promote a theory of architecture without simultaneously promoting a theory (at least implicit) of the city.

Bess, *supra* note 116, at 80-81.

a means for humans not only to find places to live, to work, and to play, but also to communicate with one another about their lives, their pasts, and their futures. It is historical, contextual, and associational; Venturi emphasizes the importance not only of the instrumental value of design, but its symbolic value.<sup>119</sup>

The different forms of the abstract idea of complexity may be better illustrated by Venturi's comments on specific buildings:

Many of the shingled houses from our office have in common a contradiction in their design characteristic of historical Shingle Style houses,<sup>120</sup> especially the late examples by H.H. Richardson (which are sometimes of masonry, *if* in the Shingle Style) and the early work of Bruce Price at Tuxedo Park: they are picturesque and holistic at once. Their plans are quite regular in their exterior outlines but their elevations are quite irregular in their overall silhouettes. Their asymmetrically placed towers, wings, and dormers seem to be emergent—gestural or suggestive—rather than substantive or complete. In this way the houses embody a Romantic-picturesque aesthetic and accommodate interior functional complexities while their almost melting forms, reinforced by low-relief details, create a diversity of parts that are separately perceived but are becoming one: here is perhaps picturesqueness abstracted.<sup>121</sup>

In lay terms, Venturi identifies complexity in conflicts of at least seven elements, forms, and/or functions: between the interior spaces that constitute the structure and a building's exterior form; between the form of the structure and material used to build it; between the plan for the house (hypothetically looking down on a cutaway of the structure) and its elevation (looking at the structure from the front, back, or side); between its whole and particular details; between a building's style and its substance, or function; between popular design elements and elite ones; and between public forms and private ones. These are not neat categories. They overlap to a greater or lesser degree; some may be missing in cer-

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<sup>119</sup> Cf. Scully, *supra* note 116, at 206 (characterizing Venturi's approach as "context as a spur to individuality"). *But see* COLIN ROWE & FRED KOETTER, *COLLAGE CITY* (1978) (arguing that Venturi is disingenuous in supposing that architects can avoid value judgments even in the context of "contextual" urban design).

<sup>120</sup> "Shingle Style" is a phrase coined by architecture historian Vincent Scully to describe an aesthetic that developed in American design in the 1870s. *See* VINCENT SCULLY, *AMERICAN ARCHITECTURE AND URBANISM 111-17* (1969); VINCENT SCULLY, *THE SHINGLE STYLE AND THE STICK STYLE: ARCHITECTURAL THEORY AND DESIGN FROM RICHARDSON TO THE ORIGINS OF WRIGHT* (1955). A leading practitioner was Henry H. Richardson, the designer of Harvard Law School's Austin Hall, among other things.

<sup>121</sup> Robert Venturi, *Homage to Vincent Scully and His Shingle Style, with Reminiscences and Some Outcomes*, in *ICONOGRAPHY AND ELECTRONICS UPON A GENERIC ARCHITECTURE: A VIEW FROM THE DRAFTING ROOM* 41, 42 (1996).

tain well-designed structures, and other conflicts not identified here may show up in others. In sum, however, the complexity they represent gives meaning and power to the architecture.

Complexity, or diversity, or heterogeneity has many meanings in the tangible environment. Venturi and Scott Brown embrace this imprecision. Professor Frug shows why, in the tangible world, the law should recognize it. In the tangible or built environment, in short, there seems to be broad agreement on the benefits to be realized from designs and structures that are themselves complex and that enhance a complex social experience.

How do these visions translate into "legal" terms as a sketch of an architecture of copyright or cyberspace?<sup>122</sup> The architecture of discontinuity described in Part I has co-existed uneasily with utilitarian justifications for copyright that focus on the quantum of expressive works generated. Labor-based, private property-based, and autonomy-based justifications for copyright appear equally awkward in assessing the output of a copyright system. Instrumental perspectives correctly look to the social impact of copyright, but do so often independent of form, format, style, substance, length, depth, or genuine (colloquial) originality. To resist those arguments, scholars have turned to justifications that rely on differing incentives for copyright suppliers.<sup>123</sup> They have turned to justifications based on demand for eclecticism.<sup>124</sup> They have turned to justifications based on idiosyncratic constructions of "the good life" to which copyright should aspire.<sup>125</sup> The results are prescriptions for

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<sup>122</sup> A handful of legal scholars have attempted an explicit link. See John Nivala, *Planned Parenthood v. Casey: The Death of Repose in Reproductive Decisionmaking*, 4 SETON HALL CONST. L.J. 47, 88-93 (1993) (arguing, based on Venturi's work, that constitutional architectures should be informed by acceptance of heterogeneity and diversity); Keith Aoki, *Contradiction and Context in American Copyright Law*, 9 CARDOZO ARTS & ENT. L.J. 303 (1991) (arguing in favor of a simplified approach to intellectual property questions concerning industrial design). But see Keith Aoki, *Race, Space and Place: The Relation Between Architectural Modernism, Post Modernism, Urban Planning, and Gentrification*, 20 FORDHAM URB. L.J. 699, 818-25 (1993) (noting implicit assumption of post-modern architectural theorists, including Venturi, that taste for eclecticism signified—and perhaps required—affluence). Cf. Been, *supra* note 107, who points out a similar objection to Professor Frug's work.

<sup>123</sup> See, e.g., Neil Weinstock Netanel, *Copyright Alienability Restrictions and the Enhancement of Author Autonomy: A Normative Evaluation*, 24 RUTGERS L.J. 347, 431-39 (1993) (to avoid a market-based "race to the bottom" of cultural diversity, copyright should focus on the expressive visions of authors, or reward "moral rights").

<sup>124</sup> See, e.g., Thomas F. Cotter, *Pragmatism, Economics, and the Droit Moral*, 76 N.C. L. REV. 1, 78 & n.346 (1997) ("It seems at least as likely to me, however, that the greater threat to the continued vitality of the arts in America is the lack of public appreciation of the arts, rather than the lack of cultural diversity . . .").

<sup>125</sup> See, e.g., William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659, 1744-62 (1988) ("The good life is an intense life, and intensity depends in part on adventurousness. To be vulnerable, to be not fully in control of one's life, is a good thing, a condition to be sought, not shunned.") "[U]ses of copyrighted material that either constitute or facilitate creative engagement with intellectual products should be preferred to

diversity and challenges to identity fostered by copyright at an individual level, which ignore consequent pressures to standardization or simplicity.<sup>126</sup> The next Part offers a different approach.

### III. COPYRIGHT AND THE DESIGN OF THE FIRST AMENDMENT

Having constructed an argument for the virtues of complexity, relying on the assumption of cyberspace as a constructed, architecturally distinct place,<sup>127</sup> here that assumption is relaxed. Cyberspace is an abstraction of the multitude of ways in which individuals, firms, and groups now communicate with one another. Copyright is no less an abstraction. If the simple physical architecture of cyberspace is undermining the complexity of copyright law,<sup>128</sup> we must turn to abstractions, and to more robust abstractions than cyberspace, for recourse to complexity in legal doctrine. Engineering remedies will, at best, fall short. Outside copyright itself, however, only the First Amendment, of adjacent legal doctrines, offers "complexity" as an abstract legal principle.<sup>129</sup> Although there is little doubt that nearly all works governed by copyright law are "speech," and that alleged copyright infringers often engage in protected "speech," copyright law has had an uneasy relationship with the First Amendment. Nothing in the copyright statute specifically refers to constitutional assurances concerning free expression. The Supreme Court has held that the dichotomy between ideas (unprotectable) and expression (protect-

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uses that neither constitute nor foster such engagement." *Id.* at 1768. Professor Fisher persuasively draws these conclusions out of a philosophical tradition that he traces to John Stuart Mill. *See id.* at 1751. In spirit, then, they are much in keeping with the discussion in this Part, but they are not moored to American copyright traditions themselves.

<sup>126</sup> The discussion of digital network technology in Part I reflects one such problem. Many would argue that the development of the Internet creates unprecedented opportunities for changes to both supply of and demand for "culturally diverse" expressive works. A balanced view comes from Geoffrey Nunberg:

[T]hese new [electronic] forms inhabit a public space that is already highly developed and differentiated, so that like other technological innovations . . . they will wind up assuming certain specialized functions alongside the established informational genres of print and their derivative electronic representations.

Geoffrey Nunberg, *Farewell to the Information Age*, in *THE FUTURE OF THE BOOK* 133 (Geoffrey Nunberg ed., 1996).

<sup>127</sup> This Article was prompted by the observation that despite enormous wealth and creative energy, the Silicon Valley of Northern California, the physical and spiritual "home" of the digital technology economy, is characterized by extraordinarily bland architectural and cultural communities.

<sup>128</sup> *See supra* Part I.

<sup>129</sup> Antitrust law, particularly given the emergence of the related doctrine of "copyright misuse" as a defense to enforcement of copyright and/or copyright licenses, suggests another potential resource, which in the interest of economy is better excluded here. For a review of the doctrine, see Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111, 151-58 (1999).

able), and between infringing use and non-infringing “fair” use,<sup>130</sup> both rely, at least in part, on protections granted by the First Amendment to readers and re-using creators.<sup>131</sup> Not only does the First Amendment mandate certain limitations for copyright; copyright provides economic incentives that generate expression to feed the First Amendment. Copyright’s own “creativity” prerequisite—the “authorship” requirement—is minimal,<sup>132</sup> but the two bodies of law are inextricably linked by a common interest in creativity. If “complexity,” a closely related concept, is to be prescribed and protected within copyright, then the First Amendment is the place to start.

The text of the First Amendment, however, is scarcely self-executing when applied to copyright questions. What does the First Amendment mean when it approaches copyright, and particularly when it approaches the problem of complexity? Recent attention to these issues has focused on two solutions.<sup>133</sup> Both, it is worth noting, focus on the dimensions of copyright architecture described at the outset of this Article, that is, the extent to which owners of copyrighted works must endure reuse of those works by

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<sup>130</sup> Section 107 of the Copyright Act provides that “the fair use of a copyrighted work . . . for purposes such as criticism, comment, news reporting, teaching, . . . scholarship, or research, is not an infringement of copyright.” 17 U.S.C. § 107 (1994). The statute provides, in addition, that whether any particular use is “fair” shall be guided by factors that include: the purpose and character of the use, including whether the use is of a commercial nature or for nonprofit educational purposes; the nature of the copyrighted work; the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and the effect of the use upon the potential market for, or value of, the copyrighted work. *See id.*

<sup>131</sup> Under current law, the First Amendment has no application to copyright questions beyond the framework of copyright law itself. The idea/expression dichotomy “strikes a definitional balance between the First Amendment and the Copyright Act by permitting free communication of facts while protecting an author’s expression.” *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 556 (1985). *See also* *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 577 (1994) (fair use “permits courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster”). The idea/expression dichotomy and the fair use doctrine should then, either together or separately, be coextensive with “the First Amendment.” It is essentially unknown, however, what that conclusion means, substantively. It is also an open question whether the First Amendment has a substantive application to other copyright issues.

<sup>132</sup> *See* *Feist Publications, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 345 (1991). The Court traced its constitutional analysis to *The Trade-Mark Cases*, 100 U.S. 82 (1879), focusing on the “authorship requirement,” for copyrightability as a proxy for the combination of independent creation and a modicum of creativity.

<sup>133</sup> The relationship between the First Amendment and copyright law has been the subject of much analysis and criticism. The leading commentary is Paul Goldstein, *Copyright and the First Amendment*, 70 COLUM. L. REV. 983 (1970); Melville B. Nimmer, *Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?*, 17 UCLA L. REV. 1180 (1970); Robert Denicola, *Copyright and Free Speech: Constitutional Limitations on the Protection of Expression*, 67 CAL. L. REV. 283 (1979); Robert A. Kreiss, *Access and Commercialization in Copyright Theory*, 43 UCLA L. REV. 1 (1995).

persons, or in manners, to which the owners object. But each one does so by explicitly or implicitly engaging a different aspect of the copyright/First Amendment interface.

The first analysis is primarily procedural. Professors Lemley and Volokh argue that, as copyright law is self-evidently a restraint on protected speech, procedural devices that balance risks and rewards of objectionable speech should apply to copyright cases as well as to First Amendment cases.<sup>134</sup> In practice, however, as difficult as preliminary relief is to obtain in most “free speech” cases, preliminary injunctions are subject to comparatively minimal substantive and procedural burdens.<sup>135</sup> They argue that there is no practical or principled reason not to make owners of copyrights await final determinations on the merits of their claims in the same way that other plaintiffs challenging speech by a defendant must ordinarily do. Prior restraints on speech and preliminary injunctions in copyright cases, in particular, should be subject to equivalent procedural burdens, and more copyright infringement claims should await final adjudication through trials on the merits.<sup>136</sup> In effect, between the time preliminary relief might be granted and the entry of a final judgment on the merits, authors may have to endure a greater amount of objectionable reuse of their works (i.e., speech) than they do under present law. That amount would increase more if the reduced availability of preliminary relief then reduced the probability of plaintiffs’ prevailing at trial or, more likely, reduced the incidence of settlements leading to the withdrawal of the objectionable material.

The virtue of this approach—the argument that all speech should be placed on a non-discriminatory procedural footing—is also its weakness. Beneath the procedural reform it proposes is a substantive agenda that argues that the judicial system improperly favors some speech over other speech. The system grants special favors to creators of works protected by copyright, that is, certain speech, and erects special hurdles for other speakers who are ac-

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<sup>134</sup> See Mark A. Lemley & Eugene Volokh, *Freedom of Speech and Injunctions in Intellectual Property Cases*, 48 DUKE L.J. 147, 182-99 (1998). This proposal, it should be noted, is not exclusive of substantive reforms.

<sup>135</sup> In copyright cases, the availability of preliminary relief depends almost entirely on the plaintiff’s showing of a “likelihood of success on the merits.” Likelihood of success turns on two things: ownership of a valid copyright and a showing of infringement by the defendant. Registration of a copyright gives rise to a presumption in favor of validity. Infringement can be shown by indirect evidence of copying: access and substantial similarity. In practice then, preliminary relief in such cases is dramatically easier to obtain, and more commonly obtained, than in any other area of “speech” practice. See *id.* at 159-64.

<sup>136</sup> See *id.* at 179-80 (noting minimum standards from speech injunction cases should be likewise applicable to claims in copyright requesting preliminary relief).

cused of infringing, also known as “second-comers” or creators of additional works. The law grants special favors to speech not bound up with copyright claims by creating special procedural protections, and disfavors other speech. The procedural proposal intends to remedy those imbalances.<sup>137</sup> Procedural reform, however, lacks any particular vision of the social benefits of diversity or complexity in copyright (or of the First Amendment); having implemented the reform that subjects all speech to essentially equal procedural treatment, one is still left to analyze the competing interests of different speakers.

Procedural reform obviously is not exclusive of substantive reform, but it does not necessarily follow that this reform must be based on a substantive analysis of interests that favors a diversity of speakers, or a complex copyright environment. Though the authors ground their argument in the assumption that such social benefits of diversity are desirable, and that they exist, procedural reform might likewise be justified by demonstration that copyright is inferior to other techniques as a mechanism for ensuring an optimal supply of expressive works. Limiting the availability of preliminary injunctions in copyright cases increases the non-copyright-based incentives of authors, which might well lead to the production of more works, over which those authors will retain even more effective control. The absence of preliminary relief would decrease authors’ ability to exclude copyists from their markets under existing law and increase their incentive to secure market advantages in other ways.<sup>138</sup> The relative indeterminacy of the substantive implications of the proposal thus bear further examination in light of additional First Amendment doctrine.<sup>139</sup> That discussion follows a review of the second recent mode of copyright/First Amendment analysis.

The second mode offered recently proposes more explicitly to use First Amendment doctrine to require creators (speakers) to confront unapproved and unauthorized reuses and re-creations. The First Amendment cases that seem to most directly support the proposition that the law requires suffering such unorthodoxy are *Rowan v. United States Post Office*<sup>140</sup> and *Lamont v. Postmaster General of the United States*.<sup>141</sup> Both cases might be said to stand for the

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<sup>137</sup> See *id.* at 198.

<sup>138</sup> Alternative methods might include technological means of controlling distribution, reliance on other legal forms, such as contract, and the production of a multitude of additional works produced at relatively low cost.

<sup>139</sup> See *infra* notes 155-171 and accompanying text.

<sup>140</sup> 397 U.S. 728 (1970).

<sup>141</sup> 381 U.S. 301 (1965).

proposition that under certain circumstances, a reader or listener has a constitutional obligation to suffer speech that the reader might deem offensive. *Lamont* struck down a federal statute that required individuals to affirmatively elect to receive mail from foreign addresses that contained communist propaganda. *Rowan* upheld a federal statute that permitted an addressee to notify the Post Office of mail that the recipients deemed "erotically arousing or sexually provocative," following the opportunity to review an initial volley. The Postmaster General was then to direct the sender to discontinue further mailings to that addressee.

Constitutional scholars note that these cases lend support to the principle that in some contexts, at least, the government may force diversity on an otherwise unwilling public. At the least, the government may not, in the name of the public, pre-determine what will, and what will not, offend that public.<sup>142</sup> In cyberspace, this argument has been raised against government proposals to mandate the use of "filtering" software in certain contexts to shield innocent and unwilling eyes from offensive Internet content. Its application to copyright is relatively straightforward: the First Amendment limits the extent to which copyright owners may claim to be an unwilling audience for reuse of their copyrighted material, and thus substantively limits the availability of remedies for infringement. Conversely, for a host of good reasons, the reader or other reuser of a copyrighted work may wish to recast the form, content, or other aspects of the meaning of the original, either specifically to object to, or dissent from, the creative point made by the original, or to express some other argument. Government may not simply protect the "unwilling recipient" of this expression; under some circumstances, at least, such a "right to dissent" must be protected.

Copyright doctrine approaches this idea of a "right to dissent" with the notion of "transformative use" under the "fair use" doctrine. Ruling that 2 Live Crew's rap parody of Roy Orbison's "Pretty Woman" might constitute a permitted "fair use" of that copyrighted work, the Supreme Court made the now well-known statement that "the central purpose of this investigation [under the first 'fair use' factor, the purpose and character of the use] . . . asks,

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<sup>142</sup> See Kathleen M. Sullivan, *First Amendment Intermediaries in the Age of Cyberspace*, 45 UCLA L. REV. 1653, 1674-82 (1998); Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, HARV. L. REV. (forthcoming 1999). See also *Bolger v. Youngs Drug Products Corp.*, 463 U.S. 60 (1983) (the fact that protected speech may be offensive to some does not justify its suppression); *Public Utilities Comm'n v. Pollak*, 343 U.S. 451 (1952) (no freedom to listen only to what one wants to hear).



in other words, whether and to what extent the new work is ‘transformative’.”<sup>143</sup> The Court relied on an earlier analysis by Judge Pierre Leval, who wrote: “If . . . the secondary use adds value to the original . . . if the quoted matter is used as raw material, new aesthetics, new insights and understandings . . . this is the very type of activity that the fair use doctrine intends to protect for the enrichment of society.”<sup>144</sup> “Transformative” use of existing speech has been equated, in the First Amendment context, with a First Amendment “right to dissent,”<sup>145</sup> which in turn might be understood to be co-extensive with a “right to be uncivil” or a “right to flout norms.” The conceptual link between *Rowan* and *Lamont* under the First Amendment, copyright principles, and the analysis of architecture and urbanism in Part II seems clear, providing a principled basis in law for making a substantive appeal to complexity as “diversity” in copyright.

How far the concept reaches, however, even on its own terms, is unclear. The reach of the “right to dissent” principle, even in the First Amendment context, is unclear. Professor Sullivan notes that it may depend on the existence of relatively low costs of opting out of the relevant environment.<sup>146</sup> Government cannot protect listeners from offense if listeners can easily protect themselves. This explains results such as *Cohen v. California*,<sup>147</sup> in which the Court ruled that the wearer of a shirt that proclaimed “Fuck the Draft” in a courthouse could not be prosecuted without offending the First Amendment,<sup>148</sup> *Reno v. American Civil Liberties Union*,<sup>149</sup> in

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<sup>143</sup> *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994). The Court drew a distinction between usually permitted “parodies” (reuses that comment on the original) and probably unpermitted “satires” (reuses that comment on other targets) that is, from an artistic point of view, likely indefensible. See Tyler T. Ochoa, *Dr. Seuss, the Juice and Fair Use: How the Grinch Silenced a Parody*, 45 J. COPYRIGHT SOC. 546 (1998).

<sup>144</sup> Pierre Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1111 (1990). See also Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1077-83 (1997) (arguing that a “transformative use” doctrine should protect “radical improvers” from liability for copyright infringement, even where the market for the original copyrighted work is harmed).

<sup>145</sup> See Lawrence Lessig, *Post-Constitutionalism*, 94 MICH. L. REV. 1422, 1456-62 (1994) (reviewing ROBERT POST, *CONSTITUTIONAL DOMAINS: DEMOCRACY, COMMUNITY, MANAGEMENT* (1995)). See also Steven Shiffrin, *The Politics of the Mass Media and the Free Speech Principle*, 69 IND. L.J. 689, 719 (1994) (First Amendment as centered on a right to dissent). Professor Hamilton’s work on the substantive political importance of art as subversive speech uses a different perspective to make the connection clear between this aspect of the First Amendment and copyright. See Marci A. Hamilton, *Art Speech*, 49 VAND. L. REV. 73 (1996).

<sup>146</sup> See Sullivan, *supra* note 142, at 1674-75 & n.75.

<sup>147</sup> 403 U.S. 15 (1971).

<sup>148</sup> In cases cast as “unwilling listener” situations, the cost of averting eyes and ears in a public place is presumed to be low. See also *Madsen v. Women’s Health Center*, 512 U.S. 753 (1994) (picketing an abortion clinic); *Erznoznik v. City of Jacksonville*, 422 U.S. 205 (1975) (offensive films in drive-in movie theater); *Consolidated Edison Co. v. Public Utili-*

which the Court invalidated Congress' attempt to limit the accessibility of "adult" materials on the Internet, that is, to "zone" the Internet for the benefit of children, and, arguably, *Federal Communications Commission v. Pacifica Foundation*,<sup>150</sup> where the Court approved imposing sanctions on a radio broadcast of George Carlin's "Seven Dirty Words," despite what was likely a low cost of opt-out for listeners.<sup>151</sup>

To the extent that the cases depend on easy opt-out, in copyright contexts the costs and consequences of opting out (i.e., avoiding the objectionable reuse) are less certain. They may be high, for both authors and readers/reusers. If copyright proprietors attempt to rely on legally-sanctioned "rights management" systems that potentially deprive readers of statutory "fair use" rights,<sup>152</sup> they may avoid "offensive" (even transformative) reuse altogether, but implementing such systems may lead to significant expense. Less expensive alternatives for avoiding copyright's fair use doctrine involve relying on contract or unfair competition principles to protect creative works in the first place. If, on the other hand, courts apply an expansive version of preemption doctrine to cabin the ability of copyright owners to "opt out" of the federal Copyright Act,<sup>153</sup> "opt-out" analysis becomes problematic. In principle, under

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ties Comm'n, 447 U.S. 530 (1980) (placing inserts that discussed controversial issues into monthly bills); *Cantwell v. Connecticut*, 310 U.S. 296 (1940) (playing records in public streets attacking listeners' religious beliefs). *But see Kovacs v. Cooper*, 336 U.S. 77 (1949) ("sound trucks" in public streets may be regulated by local ordinance).

<sup>149</sup> 521 U.S. 844 (1997).

<sup>150</sup> 438 U.S. 726 (1978).

<sup>151</sup> The First Amendment has been generous with respect to "time, place, and manner" restrictions on speech, even in alleged public fora. *See Perry Educ. Ass'n v. Perry Local Educators Ass'n*, 460 U.S. 37 (1983) (time, place, and manner restrictions are valid if they are content-neutral, narrowly tailored to serve a significant governmental interest, and leave open ample alternative channels of communication). The Court's "public forum" jurisprudence seems at times to invoke an implicit presumption that citizens have at least some obligations to endure offensiveness in public places. *See Denver Area Educ. Telecomm. Consortium, Inc. v. FCC*, 518 U.S. 727 (1996); *International Soc'y for Krishna Consciousness, Inc. v. Lee*, 505 U.S. 672 (1992); *Frisby v. Schultz*, 487 U.S. 474 (1988); *Cornelius v. NAACP Legal Defense & Educ. Fund*, 473 U.S. 788 (1985); *Carey v. Brown*, 447 U.S. 455 (1980) (Rehnquist, J., dissenting); *Lehman v. City of Shaker Heights*, 418 U.S. 298 (1974). *See also* Kathleen M. Sullivan, *Discrimination, Distribution, and City Regulation of Speech*, 25 HASTINGS CONST. L.Q. 209, 210-11 (1998) (describing tension between leeway granted to time, place, manner regulation and strict limitation on content-based discrimination by governments).

<sup>152</sup> The Digital Millennium Copyright Act of 1998 amended the Copyright Act to include provisions forbidding disturbing the integrity of so-called copyright management information and prohibiting efforts to circumvent technological protection measures. *See* 17 U.S.C.A. §§ 1201(a), 1202(b) (Supp. 1999). Professor Bell proposes that an author's decision to implement a technological rights management system should be permitted if the author foregoes protection under the Copyright Act. *See* Tom W. Bell, *Fair Use v. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine*, 76 N.C. L. Rev. 557 (1998).

<sup>153</sup> *See* 17 U.S.C. § 301(a) (1994) (statutory preemption of "all legal or equitable rights

First Amendment analysis, high costs of copyright owner “opt-out” suggest a more limited scope to fair use rights, and vice versa. In practice, however, as technology reduces those costs, technology also dramatically limits fair use.

These cases also are limited in their application to copyright by their concern primarily with the unwilling recipient of speech. The copyright question presents not only the unwilling listener (the author who is subjected to critical reuse of the work), but also, in the same person, the unwilling speaker. If one adjusts the characterization to focus not on the work (i.e., the speech), but on the author, then requiring the author to permit “fair” reuse of the work in effect compels that author/speaker to subsidize, with raw material, the speech of that second user. If the second user’s speech/work is, as a factual matter, associated by the audience with the original author, against the interests or wishes of that author, then one could characterize the situation as one of “compelled speech”; by law, the original author has subsidized the creation of a work to which that author objects. Here, the social interest in avoiding uncritical orthodoxy, in preserving the right to dissent, may be the same, but First Amendment jurisprudence has been more sympathetic to the plight of the unwilling speaker than to the plight of the unwilling listener.<sup>154</sup> Since any given author is simultaneously audience (with respect to others’ works) and

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that are equivalent to any of the exclusive rights” granted by the Copyright Act, for works that are “fixed in a tangible medium of expression and come within the subject matter of copyright”).

<sup>154</sup> See *Hurley v. Irish-American Gay, Lesbian & Bisexual Group of Boston*, 515 U.S. 557 (1995); *McIntyre v. Ohio Elections Comm’n*, 514 U.S. 334 (1995); *Keller v. State Bar of Cal.*, 496 U.S. 1 (1990); *Pacific Gas & Elec. Co. v. Public Utilities Comm’n*, 475 U.S. 1 (1986); *Abood v. Detroit Bd. of Educ.*, 431 U.S. 209 (1977); *Wooley v. Maynard*, 430 U.S. 705 (1977); *West Virginia State Bd. of Educ. v. Barnette*, 319 U.S. 624 (1943). I exclude from this analysis the difficult and controversial question of whether the act of writing computer software constitutes “speech” under the First Amendment. See *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d 1132 (9th Cir. 1999) (computer source code treated as expressive for First Amendment purposes), *reh’g en banc granted*, 192 F.3d 1309 (9th Cir. 1999); *Junger v. Daley*, 8 F. Supp.2d 708 (N.D. Ohio 1998) (source code not expressive for First Amendment purposes).

The different treatment afforded the “unwilling audience” and the “unwilling speaker” suggests another sense in which the doctrinal premise, here the “transformative use” doctrine, is incomplete. Speech interests may be trumped by other concerns where the “transformation” wrought tends to disrupt community norms (the case of the unwilling speaker, for example, which interferes with speaker autonomy) more than it reinforces them (the case of the unwilling listener, for whom the autonomy benefits of new or different speech often outweigh the costs). See Lessig, *supra* note 145, at 1456-62. Professor Lessig analyzes “hate speech” jurisprudence in this way; one might equally subject obscenity or libel cases to the same analysis. Copyright, at present, has no good tool to distinguish one type of transformation from another; the fair use doctrine instead falls back on the fair use “factors.” See *supra* note 130; Lemley, *supra* note 144, (linking purpose of “transformative use” analysis to “radical improver” doctrine in patent law).

speaker (with respect to the author's own), the choice of perspective makes a significant doctrinal difference. On its own terms, the Copyright Act favors neither one interpretation nor the other.

Or does it? This recalls the discussion above of the procedural shortcomings of copyright infringement litigation, and how Congress and the federal courts seem to allow preliminary relief in copyright speech cases far more readily than in other speech cases. A different line of First Amendment argument may be used to analyze the "differential treatment" or "selective subsidy" of different kinds of speech, a line that helps to refine the shortcomings of both procedural reform and a substantive "right to dissent" as First Amendment sources of complexity in copyright. This line can be traced through recent Supreme Court cases that concern selective funding of speech by government agencies. The notion here is that despite its trappings as merely setting the conditions for a private market in creative works, the Copyright Act in fact represents a series of governmental (i.e., public) choices to selectively subsidize certain works (speech protected by copyright) and to not subsidize others.<sup>155</sup> Complexity in the First Amendment in general, and in copyright, is in a sense a function of these choices.<sup>156</sup> It may logically be held that there are First Amendment limits on the extent to which the government may exercise those choices in favor of a preferred group, such as temporally-advantaged copyright owners.<sup>157</sup> Though hardly a model of clarity from the standpoint of First Amendment principle, recent cases suggest that the view may have some merit.

*Federal Communications Commission v. League of Women Voters*<sup>158</sup> used First Amendment grounds to strike down a federal statute that prohibited publicly-funded broadcasters from "engag[ing] in

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<sup>155</sup> See *supra* notes 137-39 and accompanying text; David Lange, *At Play in the Fields of the Word: Copyright and the Construction of Authorship in the Post-Literate Millenium*, 55 LAW & CONTEMP. PROBS. 139 (1992); Julie E. Cohen, *A Right to Read Anonymously: A Closer Look At "Copyright Management" in Cyberspace*, 28 CONN. L. REV. 981, 1020-24 (1996) (arguing that existence of First Amendment interests in copyright satisfies state action requirement for purposes of scrutinizing activity of private actors under proposed changes to Copyright Act).

<sup>156</sup> Thus, for example, Congressional recognition that certain works lie within the subject matter of copyright privileges them and their authors by granting them access to the exclusive rights enjoyed by copyright owners and to the special procedural devices (particularly preliminary relief) afforded the victims of alleged infringement. Bringing computer software within the scope of copyright is perhaps the clearest recent example of this phenomenon, though the "complexity" effects of doing so have been, needless to say, mixed.

<sup>157</sup> Presumably, this is the group that most often would be objecting to reuse of their works. The current challenge to the extension of the term of copyright is in essence based on this idea. See *supra* note 70 and accompanying text.

<sup>158</sup> 468 U.S. 364 (1984).

editorializing.”<sup>159</sup> *Rust v. Sullivan*<sup>160</sup> approved, over First Amendment objections, federal restrictions on abortion counseling by publicly-funded family planning clinics. *Rosenberger v. Rector and Visitors of the University of Virginia*<sup>161</sup> invalidated a University of Virginia policy that excepted organizations promoting a viewpoint based on religion from a policy that covered costs of student publications. Most recently, *National Endowment for the Arts v. Finley*<sup>162</sup> held that Congress did not violate the First Amendment when it authorized the National Endowment for the Arts to consider “general standards of decency and respect for diverse beliefs and values of the American public” when evaluating grant proposals.<sup>163</sup> In the aggregate, these cases hardly stand for the proposition that complexity or diversity (of speaker, content, format, or otherwise) is a First Amendment value to which the federal government must necessarily adhere in selectively subsidizing certain speech. Where government funding is involved, the “right to dissent” or engage in transformative speech has significant limits. The government may choose to reduce diversity; the question is how to tell when it acts permissibly. It acts permissibly when it uses its own resources.<sup>164</sup> It acts permissibly when it restrains arbitrary or unchecked majoritarian impulses that concern speech.<sup>165</sup> It acts impermissibly when it unduly limits the power of a relatively trusted, anti-majoritarian community to exercise and express judgments of value.<sup>166</sup> What may be characterized as content discrimination<sup>167</sup> may be more apt to be permitted than what is characterized as viewpoint discrimination.<sup>168</sup>

The foregoing distinctions are difficult to discern in a copyright context.<sup>169</sup> For copyright purposes, which aspects of copy-

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<sup>159</sup> *Id.* at 366.

<sup>160</sup> 500 U.S. 173 (1991).

<sup>161</sup> 515 U.S. 819 (1995).

<sup>162</sup> 118 S. Ct. 2168 (1998).

<sup>163</sup> *Id.* at 2169 (citing 20 U.S.C.A. § 954(d)(1)(1990)).

<sup>164</sup> See *Finley*, 118 S. Ct. at 2179; *Rust*, 500 U.S. at 192-95.

<sup>165</sup> See Kathleen M. Sullivan, *The Intersection of Free Speech and the Legal Profession*, 67 *FORDHAM L. REV.* 569, 584-88 (1998).

<sup>166</sup> See *League of Women Voters*, 468 U.S. at 388-94. The holding of *Finley* turned on the fact that Congress instructed the NEA to consider “decency” in evaluating grant proposals, but did not require the NEA to reject proposals on this basis. Nominally, at least, grant decisions remain “artistic,” rather than majoritarian, judgments.

<sup>167</sup> See *Rust*, 500 U.S. at 192-95; *Finley*, 118 S.Ct. at 2178.

<sup>168</sup> See *Rosenberger*, 515 U.S. at 828-32.

<sup>169</sup> For example, little federal funding is at stake in government subsidies of copyrighted works, so Congress has little interest in avoiding the undesirable result of “speaking” with federal funds in a way that is contrary to its sense of federal policy. This distinction may beg the question. All federal legislation “speaks” at least indirectly of the values that Congress has chosen on behalf of the government and the citizenry. If expansive judicial construction of the fair use doctrine were thought to contravene a Congressional sense of the

right law are “content-neutral,” and which are “viewpoint-neutral”? When is the government using its “own” resources, and under what circumstances are the resources of only non-government actors involved?<sup>170</sup> Continuing the example of applying prior restraint doctrine to copyright cases, if the problem is that judicial practice needlessly treats copyright speech differently, under this line of First Amendment cases there is no compelling reason to treat it the same.<sup>171</sup> As with the unwilling listener cases discussed above, the First Amendment rules involved here are too elusive to provide meaningful guidance in answering that question.

The difficulty with both lines of analysis may be the effort to fit copyright within standard First Amendment arguments. An architecture of complexity, after all, draws its vitality from the unique collection of interests represented in the relevant environment. Perhaps the proper goal here ought to be not to determine how to apply the existing First Amendment to achieve complexity in the context of copyright, but to identify, given the particular interests at stake within copyright, how differing First Amendment values ought to be recognized within it.<sup>172</sup> Identify a First Amendment for copyright, building from the interests and operation of copyright toward more general principles that define the scope of copyright “speech,” rather than identify copyright within the existing framework of the First Amendment. As Professor Schauer has recently argued, such an institutional approach to the First Amendment ought to follow precisely from what he characterizes as the “false paths” of analysis that formally drive *Finley* and its predecessors.<sup>173</sup>

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appropriate balance of subsidies, the First Amendment presumably imposes some limits on Congress’ power to revise the fair use doctrine.

<sup>170</sup> No copyright exists in publications of the federal government, for example, see 17 U.S.C. § 105 (1994), but it could be asserted under First Amendment doctrine that the government may regulate its own publications to a greater extent than it may regulate those of others.

<sup>171</sup> The traditional argument in response is that because speech is special (for all-purpose reasons related to personal autonomy and fulfillment and/or to the optimal function of our polity, broadly or narrowly defined), we should indulge every inference and ambiguity in its favor. For another argument in this form, see Alfred C. Yen, *Internet Service Provider Liability for Subscriber Copyright Infringement, Enterprise Liability, and the First Amendment*, (forthcoming GEO. L.J. 1999). Speech indeed is special, and in copyright, “complex” speech is particularly special because of its historicist, pluralistic, contextual character. See *supra* Part II.

<sup>172</sup> Cf. *Webster v. Reproductive Health Servs.*, 492 U.S. 490, 510 n.8 (1989) (noting that arguments concerning permissible allocations of government resources are structured differently when the government monopolizes the entire market).

<sup>173</sup> See Frederick Schauer, *The Supreme Court, 1997 Term: Comment, Principles, Institutions, and the First Amendment*, 112 HARV. L. REV. 84, 97-106 (1998). The “false paths” of First Amendment analysis that he identifies are public forum analysis, “state-as-speaker” analysis, unconstitutional conditions, and viewpoint discrimination.

The fact that the American legal and free speech traditions hold such a deep-seated and widespread antipathy toward institutional specificity, however, should not lead us to ignore the empirical reality of that institutional specificity. Institutional specificity and institutional differentiation are a reality of modern life, and this reality is reflected, as elsewhere, in the institutions relevant to free speech adjudication.<sup>174</sup>

Professor Schauer discusses institutional differentiation of free speech policy-making in libraries and in arts administration that justify differences, among other things, in the amount of deference that legislators and judges should pay to different decision-makers.<sup>175</sup>

The argument depends, in part, on empirical arguments that justify breaking down barriers that divide First Amendment "principles" from mere "policy" concerns. Copyright law in the United States is, at the least, a creature of policy. Empirically, notwithstanding the rhetorical attractiveness of the "authorship" ideal, it is also an institution.<sup>176</sup> Acknowledging the policy basis of First Amendment concepts in the context of copyright seems a natural application of a more institution-specific approach. That is, adapting the First Amendment in light of copyright policy, and developing First Amendment bearings in light of copyright's institutional purposes, rather than shaping copyright law to conform to First Amendment principles, seems the more productive course.<sup>177</sup>

What the First Amendment provides for complexity in copyright is not a principled response defining complexity in the First Amendment, which is the issue raised by abstracting an architect-

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<sup>174</sup> *Id.* at 113-14.

<sup>175</sup> *See id.* at 114-15.

<sup>176</sup> It is also an institution constituted in large part by subsidiary institutions. *Cf.* Robert P. Merges, *Contracting Into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996).

<sup>177</sup> *Cf.* STEVEN SHIFFRIN, *THE FIRST AMENDMENT, DEMOCRACY, AND ROMANCE* 692, n.20 (1990) ("[T]he monastic connotation of the phrase ['free speech principle'] is quite misleading. It detracts from the complexity of free speech as a practice and from the extent to which free speech refers to a multiplicity of sometimes conflicting values."). By rejecting Holmesian abstraction in the context of the First Amendment, this approach mirrors an abandonment of aesthetic agnosticism in copyright policy. Holmes saw the link between the two, as the author of both the "marketplace of ideas" metaphor for First Amendment law, *see Abrams v. United States*, 250 U.S. 616, 624 (1919) (Holmes, J., dissenting), and of *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239 (1903). *See supra* note 79 and accompanying text. Property law may be recognizing a similar shift away from abstraction and toward context. *Compare* Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 778 (1986) (suggesting Holmes-based connection between speech and the socializing function of public property), *with* Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 139-55 (1998) (suggesting the emergent trend toward specialized property institutions in intellectual property context).

ture of copyright from First Amendment principles. Instead, it provides a doctrinal resource for developing and justifying a copyright-specific architecture of complexity. The classic way to assess First Amendment interests in copyright policy has been to “balance” the interests of authors, readers, and sometimes others. Fact-specific fair use determinations permit courts to identify and implement that “balance” on a case-by-case basis, taking into account “free speech” principles.<sup>178</sup> Relevant policy concerns might, in addition, identify the principal decision-makers for speech and complexity purposes in copyright cases (e.g., court, legislature, and/or marketplace), and how, if at all, the response to that question should vary across copyright contexts. What are the relevant institutional or other incentives motivating institutions and individuals to pursue heterogeneity or discontinuity, and what are the relevant incentives motivating continuity and standardization?

The scope of the inquiry expands beyond the traditional division between “author” and “reader.” “Intermediaries” in a First Amendment sense, including publishers, booksellers, and collective rights organizations, have recently taken on increased copyright significance, particularly as technological intermediaries, such as on-line content providers and Internet service providers, and are beginning to be recognized as having distinct copyright interests. The institutions of copyright decision-making are broader still. Even an incomplete list also includes technologies of distributing and monitoring access to copyrighted works, non-governmental copyright enforcement and standard-setting organizations, venture-capital firms that finance firms that produce digital works, and entertainment and publishing firms both large and small. Individuals and firms representing and embodying “the public interest” cannot be overlooked, even if “the public interest” has neither a uniform, consistent definition, nor a recognized institutional embodiment. For most purposes, that interest is represented in litigation and the legislative process by those asserting rights of fair use and access to public domain material. Copyright has traditionally relied rhetorically on the self-interested individual “creator” or “author” to optimize the public interest through the creation of expressive works. The concept that complexity is best

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<sup>178</sup> Giving courts this authority does not imply that it will be exercised wisely in every case. Compare *Leibovitz v. Paramount Pictures Corp.*, 137 F.3d 109 (2d Cir. 1998) (affirming decision finding no infringement of copyright in movie poster parodying plaintiff's photograph of Demi Moore) with *Dr. Seuss Enters., L.P., v. Penguin Books USA, Inc.*, 109 F.3d 1394 (9th Cir. 1997) (affirming preliminary injunction against publication of satirical book describing the criminal trial of O.J. Simpson, entitled “*The Cat NOT in the Hat*”).



pursued amid a multitude of individual, relatively unconstrained authorial decisions<sup>179</sup> may remain the case in some contexts, but neither existing First Amendment devices nor copyright's rhetoric is up to the task of assuring that it is so in any particular setting; incentives and experience may lead to concluding that the marketplace for expressive works may tend more toward simplicity and homogeneity than toward complexity. Among other things, we need a reasoned mix of "top-down" and "bottom-up" approaches to achieve the desired outcomes, a mix of the planned and the unplanned.

Applied to particular questions within copyright doctrine, complexity considerations may be applied in a variety of ways. In fair use doctrine, for example, the factor-driven statutory framework is a helpful beginning, but it remains subject to being hijacked by arguments that "commercial" reuse is presumptively unfair.<sup>180</sup> The so-called "transformative" use doctrine is a healthy tonic, but one that is liable to misapplication and overemphasis on its own terms.<sup>181</sup> The scope of copyright in computer programs<sup>182</sup>

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<sup>179</sup> Cf. David R. Johnson & David G. Post, *The New "Civic Virtue" of the Internet*, in *THE EMERGING INTERNET* 23, 25 (C. Firestone ed. 1998):

Rather than rely upon even the best of our democratic traditions to create a single set of top-down laws to impose on the Internet, would-be regulators of cyberspace should instead foster the emergence of diverse and contending rule sets that 'pull and tug' against each other . . . in order to allow an optimal overall combination of rules to arise. . . . [W]ould-be architects of online governance systems should look for a form of civic virtue that can tolerate continuous conflict and can reside in the very architecture of a decentralized, diverse, complex adaptive system.

*Id.*

<sup>180</sup> See *American Geophysical Union v. Texaco, Inc.*, 60 F.3d 913 (2d Cir. 1994); *Tiffany Design, Inc. v. Reno-Tahoe Specialty, Inc.*, 51 U.S.P.Q. 2d 1651 (D. Nev. 1999).

<sup>181</sup> The Court in *Campbell* noted that the presence or absence of "transformation," while not dispositive, would tilt fair use analysis toward or away from a finding of non-infringement. See *Campbell*, 510 U.S. at 578. The Court justifies this bias on the ground that the point of copyright is to stimulate creative expression, *see id.*, but it is no less likely that even more creativity could be stimulated within copyright under a regime in which transformative use weighed in favor of non-infringement, but the absence of transformation did not weigh against it. *But see Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 455, n.40 (1984); Pierre N. Leval, *Fair Use Rescued*, 44 *UCLA L. REV.* 1449 (1997).

<sup>182</sup> Section 117 of the Copyright Act more or less permits the possessor of a copy of a computer program to reproduce that copy in the course of using it, e.g., to copy the program from a medium on which it is permanently stored (such as a CD-ROM, floppy disk, or hard drive) to a medium on which it is temporarily stored (such as a memory device). The relevant statutory text, however, is a legal minefield. It provides that the "owner" of "a copy" may "make" "another copy" "as an essential step in the utilization of the computer program in conjunction with a machine." 17 U.S.C.A. § 117(a)(1) (Supp. 1999). A mere "licensee" of a copy may have no legal rights in that program, except as authorized by the license. See *DSC Communications Corp. v. Pulse Communications, Inc.*, 170 F.3d 1354 (Fed. Cir. 1999). The combination of Section 117 and a fair use rule that makes commercial re-use presumptively unfair, *see Sony Computer Entertainment, Inc. v. Connectix Corp.*, 48 F. Supp. 2d 1212, 1219 (N.D. Cal. 1999), makes "fair" reuse of computer programs by software developers all but impossible. The result is not only inefficient "reinv-

should likely be reconsidered, as well as such issues as the term of copyright,<sup>183</sup> and the extent which copyright law should pre-empt equivalent rights under state law.<sup>184</sup> Not all of these directly implicate the First Amendment itself, but they do play important roles in the shape and structure—the architecture—of copyright, and complexity lies within them as well as in fair use and the public domain.

#### IV. COMPLEXITY AND COPYRIGHT RECONCILED

This Article began with a contrast between the discontinuous world of pre-digital copyright law and the continuous present. Because it introduces and permeates the problem of architectural control of information use, the contrast remains important, but it vastly understates what turns out to be the significance of the architectural analogy. Architecture defines and creates value. Complexity in numerous senses lends important values to tangible architecture. Complexity's virtue extends to the realm of expression. Compare this statement from the classic *Learning from Las Vegas*:

[T]he order of the Strip *includes*; it includes at all levels, from the mixture of seemingly incongruous land uses to the mixture of seemingly incongruous advertising media plus a system of neo-Organic or neo-Wrightian restaurant motifs in Walnut Formica. It is not an order dominated by the expert and made easy for the eye. . . . Allusion and comment, on the past or present or on our great commonplaces or old clichés, and inclusion of the everyday in the environment, sacred and profane—these are what are lacking in present-day Modern architecture.<sup>185</sup>

with this statement from Carol Rose, describing a vision of a part of cyberspace:

One might envision a public space that is full of junk, trash, lies

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tion of the wheel" by developers who need to write software from the ground up in order to avoid infringement liability, but an expanding library of ahistorical, acontextual (i.e., simple) copyrighted works. See Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994) (arguing that an intellectual property regime for computer software should recognize the cumulative nature of software development).

<sup>183</sup> See *supra* note 70.

<sup>184</sup> The conventional wisdom among copyright scholars is that courts should make more expansive, but careful, use of preemption doctrine. See, e.g., Lemley, *supra* note 129, at 145 (faulting courts for failing to distinguish between blunt "field" preemption and more nuanced "conflicts" preemption). Using "field preemption" (which potentially invalidates entire classes of contracts, rather than particular contract terms), akin to using a sledgehammer to kill a gnat, see *id.*, has a certain appeal—at least at times. The goal of a complex architecture is complexity, not refinement, Venturi, not Vitruvius.

<sup>185</sup> Venturi, Scott Brown & Izenour, *supra* note 112, at 52-53 (emphasis in original).

and risks, but also excitement and thrills—like Central Park after dark. It is important to have such a public space. This commons is not purely tragic; creativity thrives not only on the ability to cash in on one's ideas—an ability that one gets from property—but also on a kind of free-wheeling give and take that we desire from open-access and public space.<sup>186</sup>

Tracking this analogy in copyright law necessarily makes use of the First Amendment, with its rich tradition and history of protecting the different. But the First Amendment represents only a beginning. Existing modes of First Amendment analysis that consider the extent to which either private parties or the federal government may be required to accept objectionable speech—the parallel to unconsented reuse of copyrighted works—do not account for copyright's distinct settings. By developing a First Amendment of copyright, tuned to copyright's unique institutional dimensions, we should learn how complexity and copyright can be reconciled.

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<sup>186</sup> Rose, *The Several Futures of Property*, *supra* note 177, at 154-55.