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The Legitimacy of Open Source and Other
Software Licenses

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Abstract

Software licensing and licensing of digital information in general create a regime of information governance for the Internet and beyond. This Article proposes to describe how this regime works—or fails to work—in legal terms.

THE LEGITIMACY OF OPEN SOURCE AND OTHER SOFTWARE LICENSES

Michael J. Madison*

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I. INTRODUCTION

Software licensing and licensing of digital information in general create a regime of information governance for the Internet and beyond. This Article proposes to describe how this regime works—or fails to work—in legal terms.

What prompts this discussion is the emergence of “open source” licensing,¹ a scheme of software licensing that makes comprehensive governance of a field of information production and distribution—the creation and maintenance of an information “commons”—its goal, rather than its by-product. But the conceptual problems underlying software-licensing-as-governance are not limited to the open source model. They extend to “conventional” negotiated, bilateral software licenses; to shrinkwrap, click-through, and click-wrap license forms in the mass market (for both computer programs and for other digital information works); and to technologies for “Digital Rights Management” and laws, such as the anti-circumvention provisions of the Digital Millennium Copyright Act (“DMCA”),² designed to protect them. All three of these legal forms are expressions of a single licensing framework. This Article aims to explore the conceptual conflicts they embody.

Scholars and advocates who praise the open source licensing model and condemn the DMCA and standard proprietary licenses must confront what appear to be structural commonalities among them. To promote the open source model, it appears, is to accept the legitimacy of licensing models that the open source model is designed to oppose. One way to confront this paradox is to question whether and when licenses are enforceable legal artifacts in the first place. Governance raises legitimacy questions. What is the source of the legitimacy of software licensing?

Licensing is governance of an unusual sort, since it operates at several levels simultaneously. At the level of the individual license, all licenses of copyrighted works exert some form of governance. Licenses define the circumstances under which those who work with copyrighted material can do so without fear of suit. Software licensing takes this a step further. For all intents and purposes, according to software licenses themselves, copies of computer programs are never sold outright. They are always licensed. On a second level, “the” license for a given program governs not only the relationship between the copyright owner and a particular licensee but also the relationship between the owner and all “users” of that

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¹ Open source licensing schemes permit users to access both the source code and object code of a particular computer program. In contrast, conventional or closed source licensing schemes typically permit access only to the object code, preventing manipulations of the underlying program itself. A more thorough definition of open source licensing is provided in Part II.B.

² See 17 U.S.C. § 1201 (2000).

program. Each user may pay royalties according to a different schedule (or not pay royalties at all), but the license serves as an effective constitution for the information domain defined by the program. At a third level, to the extent that all computer programs are subject to licenses and to the extent that those licenses are effectively identical in relevant respects, the world of software is effectively governed by the very concept of the license. If there is no ability to choose an “unlicensed” version of the copyrighted work, the licensing norm displaces the Copyright Act as the relevant law. To the extent that this norm extends beyond computer programs to digital works of all kinds and potentially to all copyrighted works, the Copyright Act recedes to an ever greater extent. Understanding the legitimacy of the licensing norm, as both a formal and an informal governance institution, is important at each of these levels.

A key common concern is the following: Owners of software copyrights purport to “license” copies of the programs themselves as well as the work of authorship that each copy contains. Governance thus extends not only to the manner in which “licensees” work with (intangible) copyrighted works of authorship but also to the manner in which “licensees” work with (at least nominally tangible) artifacts,³ and to their transactions in artifacts. In the digital age, the licensing norm supplies a regime of private governance of all aspects of our information culture, both intangible and tangible.

There are at least three possible sources of legitimacy and thus enforceability here, which can be roughly categorized as follows. First, licensing and each individual license may consist of a valid, specialized application of contractual norms, either in a stand-alone framework (that is, licenses are nothing more than enforceable contracts) or representing the enforceable allocation and re-distribution of property law entitlements in computer software. Second, licensing as a system of information governance may be a custom or norm that has been effectively adopted as law and that should justify enforcement of any particular license. Third, licensing as private governance may operate effectively as a system of private ordering of social arrangements.

My goal in this Article is primarily to explain the concept of software licensing as information governance, and to analyze that concept with the tools most familiar to practicing lawyers, and judges: conventional copyright, contract, and property law. Elsewhere, I assess the second and third potential sources of legitimacy—custom, and the notion of private ordering.⁴ Overall, I conclude that none of these sources supplies complete and effective legal support for the software license, particularly as background distinctions between computer “software” and “hardware,” on the one hand, and the world of legal regulation, on the other, are eroding. Foundational problems with licensing-as-governance mean that it may be time to jettison licensing as a conceptual framework, at least in some contexts. Collaborative social relationships among participants in open source projects, and “commons” and public domain dimensions of information production and distribution, may be better supported using other frameworks. Controlled, proprietary information production and distribution may likewise turn out to be poorly matched to the licensing model. Our existing conceptual category—licensing-as-governance in particular—may turn out to be a poor legal guide to the multiplicity of paths that the world of digital information creates.

II. LICENSING AS GOVERNANCE

In a sense, most of us know how licensing works. In another sense, we do not, or at least we rarely focus on its legal mechanics. This Part describes the practice of licensing of digital information generally as a mode of private governance of the contemporary information environment. It describes the key features

³ “Artifact” in general means any object produced by human workmanship. I use the term to refer both to common tangible or physical instantiations of copyrighted works, such as books, as well as modern abstract equivalents, such as computer programs, that, in practice, have no meaningful tangible substrate.

⁴ See Michael J. Madison, *Reconstructing the Software License*, 35 LOY. U. CHI. L.J. 275 (2003).

that link the legal forms that licensing takes, including conventional licenses for pre-written computer programs and other digital works, open source software licenses, and copy and access control technologies, including Digital Rights Management technologies regulated by the DMCA and potentially applicable to all digital information works.

Any license of a copyrighted work is a way of describing rights to “own” and “use” certain cultural artifacts. To copyright lawyers, the landscape of the license, and thus of the software license, is familiar. For books or plays or films, the landscape described by the license is relatively simple and categorical. The license does not describe who owns the physical book or script or film itself, though that “thing” may be leased or rented, and the document entitled “license” may describe the terms of that rental. Perhaps explicit but typically implicit in that document are two facts: First, that there exists a legally defined “work of authorship” that is embodied in that thing but that has a legally recognized existence independent of it, and second, that ownership of the physical thing is a legal status that exists independently of ownership of the copyright in that “work of authorship.”

There are thus three distinct legal phenomena represented in that landscape: ownership of the physical book (which may reside with the copyright owner or with the user); ownership of the “work of authorship” itself, which we know as the copyright in the work and which remains with the licensor; and the license to enjoy some right within that copyright, which is granted to the licensee.

The landscape defined by the typical software license is different. The software license defines its subject not only as the enjoyment of some right within the copyright in a given computer program but also as “the Program” itself. The licensor typically asserts that it retains title to “the Program,” by which the license means not “the copyright to the Program,” but “this particular copy of the Program that the licensee is paying for.” The license then goes on to provide that the licensee has only the rights to reproduce or distribute the Program as may be provided in the text of the license, and the licensee may, or may not, dispose of its copy of the Program according to the terms of the license. The landscape of the software license has four, not three, distinct legal phenomena represented within it: ownership of the disc, tape, cartridge, or chip on which the user’s copy of the Program is stored (and which is typically owned outright by the software user); ownership of the Program, that is, the electronic instantiation of the instructions that comprise the computer program, stored on that medium (according to typical software licenses, this is owned by the copyright owner and “licensed” to the user); ownership of the copyright in that Program, which is the work of authorship (also owned by the copyright owner); and the license to enjoy some right within that copyright (granted to the licensee). To own the work of authorship in a “book” is to own the copyright in that work but not necessarily to own each book containing that work. In the typical software license, a software developer owns both a copyright in the Program and title to each copy of that Program imprinted somewhere on a disk.

It is this unique assertion of control over the tangible artifact, the user’s particular copy of the Program, that distinguishes licensing of digital electronic works from the traditional world of copyright licensing. In the digital context, the argument runs as follows: That artifact cannot pass from its initial “licensee” to another except by permission of the artifact’s owner, which is the copyright owner. And if it cannot so pass, then that permission may be granted conditionally. In effect, each copy of the Program itself may be painted with the condition, so that its “licensed” status remains intact as it passes from storage medium to storage medium, and from possessor to possessor. No copy of that Program ever exists that is not “owned” by its initial “creator.” This Part describes how this framework can be traced through not only conventional “closed source” software licenses but through all forms of contemporary software licensing.



A. THE CLOSED SOURCE LICENSE

The core of the conventional software license is copyright-based legal protection for the computer program. The conventional software license consists of a document or electronic record that accompanies each copy of the program, characteristically in object code form only, formally assented to by each user of that program. The license specifies the scope of the user's legal right to make use of that object code. Most important among the specifications of permitted and proscribed uses, the conventional license states that the licensee may not modify the program in any way or "reverse engineer" the object code that has been provided, that is, to engage in any of a number of techniques that might be used to reverse the translation process and obtain a copy of the source code to the program.

The conventional license goes one important step beyond recitals of acceptable and unacceptable use. The license states that title to the code itself, to the particular copy of the program (in object code form) that is acquired by the licensee, remains with the developer. In this sense, the software license is designed to defeat copyright law's doctrine of first sale, which would otherwise permit the "licensee" to redistribute that copy of the program, and copyright's traditional distinction between the work of authorship protected by copyright law and the tangible artifact in which a work is embodied that is protected by other law. This gives bite to the conventional license statement that forbids the "licensee" from transferring this copy of the object code without the permission of the developer,⁵ to the claim that the software product cannot be broken into components and redistributed in "unbundled" form,⁶ and to the licensor's argument that "ordinary" use of the program, which typically involves reproducing the work on the licensee's computer, is authorized, if at all, by the license and not by operation of copyright law.⁷ In short, the license is supposed to be enforceable because these conditions and restrictions are legally attached to each copy of the program, and they bind any user who uses that copy. All use of the computer program, at all times, is legally controlled by the copyright owner, acting through the license.

B. THE OPEN SOURCE LICENSE

The open source model of software licensing is characterized by a philosophy of structured openness and sharing of a computer program's source code, rather than the inherent closure that characterizes the conventional license.⁸ But the basic software licensing framework—control of use, via control of title to the code itself—remains the same. As the conventional license begins with the developer's ownership of the software copyright, the open source model begins with control of the copyright in the code by some entity or group.⁹ Though open source licenses differ from one another in many technical respects, under

⁵ See 17 U.S.C. § 109(a) (2000) (providing ownership of a particular copy as a defense to claims of unauthorized distribution under section 106).

⁶ See *Adobe Sys., Inc. v. Stargate Software Inc.*, 216 F. Supp. 2d 1051, 1060 (N.D. Cal. 2002).

⁷ Section 117 of the Copyright Act permits the "owner" of a copy of a computer program to engage in limited copying of that program in connection with its ordinary use. See 17 U.S.C. § 117 (2000). A mere "licensee" of that copy has, it appears, no rights under this section.

⁸ The open source "movement" increasingly self-identifies as F/OSS, which stands for Free and Open Source Software. The terminology reflects philosophical biases, not legal distinction. The philosophical bases of the open source movement are as important as the legitimacy of its legal forms. The "open source" movement emphasizes the more reliable character of "open" code somewhat more than its freedom from conventional property-based control. See Open Source Initiative, at <http://www.opensource.org>. The latter is the hallmark of the "free software" movement. See generally Free Software Found., GNU's Not Unix, at <http://www.fsf.org>. For my purposes, I focus on the license forms themselves, most of which are collected around the "open source" model described in the text.

⁹ Criteria for certification of a license form as meeting the best-established definition of "open source" license are published by the Open Source Initiative at <http://www.opensource.org/docs/definition.php>.

any open source license the source code of the program must always be available for inspection and adaptation by users, researchers, and customers—that is, anyone who wants to work with or use the program. Any future user, researcher, programmer, or customer is free to adapt and modify that code as he or she would like. Users are free to redistribute compiled (machine-executable) versions of their modified versions, for a fee or otherwise. The original source code must remain available, and the license under which it was obtained must provide that derivative creators may distribute the source code to their adaptations or modifications.

Not all open source licenses require distribution of the source code to modifications.¹⁰ Terms that do so are sometimes referred to as “copyleft” provisions and appear in the widely-used, open-source-qualified GNU General Public License¹¹ and the Mozilla Public License.¹² (Both license forms are certified under the Open Source Definition (“OSD”), published by the not-for-profit Open Source Initiative (“OSI”). To be certified by OSI as an OSD-compliant license, the license must provide that any distribution of the program, in its original form and as modified, include source code.)¹³ By extending the source code disclosure obligation across all participants in an open source development project, “copyleft” emphasizes the value that the open source model generally ascribes to access to source code across time and that is characteristic of the open source model as a whole. In some descriptions of the model, the term “copyleft” is avoided in favor of broader descriptions of the principle that any onward distribution of the code be accompanied by license terms identical to those that accompanied receipt of the code,¹⁴ including terms that mandate the availability of the source code. This mechanism thus implements the idea that the open source model represents an ongoing venture in managed collaboration¹⁵ and, more generally, the creation and sustenance of an innovation “commons.”¹⁶ As with closed source licenses, however, any use of the program that would conflict with the express terms of the license is forbidden.¹⁷ Violation of those terms causes the license to terminate.

¹⁰ The distinction between licenses that require that source code be included in any downstream distribution of the source code and licenses that permit but do not require downstream source distribution is the distinction between what some refer to as “copyleft” provisions, for the former, and “open source” provisions, for the latter. See David McGowan, *Legal Implications of Open-Source Software*, 2001 U. ILL. L. REV. 241, 254.

¹¹ Free Software Found., The GNU General Public License (GPL), available at <http://www.opensource.org/licenses/gpl-license.php>.

¹² Open Source Initiative, Mozilla Public License, available at <http://www.opensource.org/licenses/mozilla1.0.php>.

¹³ Open Source Initiative, The Open Source Definition para. 23, at <http://www.opensource.org/docs/definition.php>.

¹⁴ See Greg R. Vetter, *The Collaborative Integrity of Open Source Software*, 2004 UTAH L. REV. 563, 594-602; Yochai Benkler, *Coase's Penguin, or, Linux and the Nature of the Firm*, 112 YALE L.J. 369 (2002) (discussing how the open source model exemplifies a model of distributed industrial production). The use of “copyleft” as a rhetorical term is associated primarily with the Free Software Foundation, promoter of “free” software. See generally Free Software Found., The Free Software Definition, at <http://www.fsf.org/philosophy/free-sw.html>.

¹⁵ Nothing in the open source model prohibits firms from selling copies of open source programs, including copies of versions compiled into machine-readable code, so long as sales are made under the terms of the relevant open source license.

¹⁶ See LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 49-73 (2001) (discussing commons in the context of open source licensing).

¹⁷ See Robert W. Gomulkiewicz, *How Copyleft Uses License Rights to Succeed in the Open Source Software Revolution and the Implications for Article 2B*, 36 HOUS. L. REV. 179, 185-89 (1999); McGowan, *supra* note 10, at 254-60; Christian H. Nandan, *Open Source Licensing: Virus or Virtue?*, 10 TEX. INTELL. PROP. L.J. 349, 355-61 (2002); Margaret Jane Radin & R. Polk Wagner, *The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace*, 73 CHI.-KENT L. REV. 1295, 1312-13 (1998).

C. THE OPEN SOURCE LICENSE AS A SPECIALIZED SOFTWARE LICENSE

The “open” (or shared) source code model thus sharply contrasts with the conventional “closed” (or hidden) source code model at one level but adopts the same underlying legal framework. In the former, both legally and technologically speaking, the program is meant to be distributed and shared among all of its producers and consumers. In the latter, both legally and technologically speaking, the program is meant to be controlled by the original producer. The open source model is ultimately a specialized application of the general purpose conventional software license.

Their descriptive equivalence can be observed in two key respects. First, both “open source” and “closed source” licenses derive their legal legitimacy from the copyright owners’ claims to own and control all aspects of computer program codes that are used by individual end users or developers. Second, both forms of license assert comprehensive statements of the scope of the users’ rights and obligations with respect both to the code and to the copyright in the code and limit the users’ rights only to those granted in the license itself, rather than to any rights supplied by the Copyright Act or other law. A software license, whether open or closed source, is a soup-to-nuts statement of the scope of legitimate behavior by a user or consumer of that software with respect to both the artifact itself, the information contained in that artifact, and the copyright, if any, that applies to that information.¹⁸

D. THE DMCA AS LICENSING

The anti-circumvention provisions of the DMCA constitute a third, equivalent effort to ratify the licensing norm, to the extent that the norm is embodied in digital technology itself. In colloquial terms, these sections of the DMCA grant legal protection to parties that use Digital Rights Management (“DRM”), a label for a collection of technologies, including encryption, watermarking, and rights permission databases, designed to monitor, charge for, and if necessary, prevent any and all conceivable uses of digital works by end users.¹⁹ The DMCA validates a species of licensing and is thus part of licensing’s regime of information governance.²⁰

The DMCA provides civil remedies and the possibility of criminal penalties for two related acts. First, the act of “circumventing” a “technological measure” that “effectively controls access” to a copyrighted work is prohibited under § 1201(a)(1)(A).²¹ “[T]o ‘circumvent a technological measure’ means to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner.”²² “A

¹⁸ The two license styles are not precisely congruent. Open source licenses typically permit unlimited reproduction, for example, and tinkering with open source code is encouraged rather than forbidden. The structural similarity lies in the efforts of both license styles to specify the scope of the user’s right in the licensed work, in ways that differ categorically from the rights that the Copyright Act would otherwise supply. Reverse engineering might be permitted as a form of fair use. See *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1527-28 (9th Cir. 1992). Installation and non-concurrent use of a single copy of the program on different computers might be permitted under the first sale doctrine or by the principle distinguishing the copyright in a work of authorship from the work’s tangible instantiation. See 17 U.S.C. §§ 109(a), 202 (2000).

¹⁹ See Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 HARV. J.L. & TECH. 41, 47-49 (2001) (describing basic contours of DRM technologies).

²⁰ See, e.g., Michael J. Madison, *Rights of Access and the Shape of the Internet*, 44 B.C. L. REV. 433 (2003) (analyzing and comparing the DMCA and click-wrap licenses, among other things, as species of access control regimes).

²¹ 17 U.S.C. § 1201(a)(1)(A) (2000).

²² *Id.* § 1201(a)(3)(A).

technological measure ‘effectively controls access to a work’ if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.”²³ A related provision of the statute forbids “trafficking” in anti-circumvention technology.²⁴ A second provision prohibits trafficking in technology that is primarily designed for the purpose of circumventing technological protection measures that effectively protect a right of a copyright holder.²⁵ “Any person injured by a violation of sections 1201 or 1202”²⁶ has standing to sue.²⁷ No threshold of harm need be established. The act of circumventing or trafficking in the circumvention technology constitutes the violation.

Some form of “technological protection measure” assuring the owner of control over “access” to the work and/or over “rights” in the work must be deployed before these provisions of the DMCA apply. Any copyrighted work will do, and the technological protection measure need be only “effective,”²⁸ not perfect. Formally, the copyright owner may choose between “rights” control technology and “access” control technology. “Rights” control technology governs what the user may do with the work once access is properly obtained. “Access” control technology governs obtaining rights to look at, listen to, or otherwise use the work in the first place. Access control technology receives greater protection under the DMCA than rights control technology. While the DMCA prohibits trafficking in technologies for circumventing both access control technologies and for circumventing rights control technologies, actually circumventing rights control technology is not subject to the exceptions provided by the DMCA to liability for circumvention of access control technology.²⁹

Enforcement of these rules in tandem ratifies decisions by the copyright owner to encode in DRM systems rules that bypass established limitations on the rights of the copyright holder established by copyright law itself, in ways that are precisely equivalent to bypass tactics used in software licensing. First sale? “Access” disabling technologies permit copyright owners to condition seeing or using the work on any terms they prefer. Fair use? The DMCA states that “[n]othing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title”;³⁰ but that section has been interpreted as not affording a “fair use” defense to defendants accused of violating the DMCA.³¹ The DMCA ratifies precisely the kind of soup-to-nuts regulatory scheme offered

²³ *Id.* § 1201(a)(3)(B).

²⁴ *Id.* § 1201(a)(2).

²⁵ *Id.* § 1201(b)(1). A parallel definition of “effective technological measure” that relates to a “right” of a copyright owner rather than “access” to a copyrighted work appears in § 1201(b)(2)(B). It appears that the act of circumventing a technological protection measure that effectively protects a right of a copyright holder is not unlawful under the DMCA, if one can lawfully acquire a device that permits doing so.

²⁶ Section 1202 addresses maintaining the integrity of “copyright management information.” *Id.* § 1202.

²⁷ *Id.* § 1203(a).

²⁸ See *Universal City Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 294, 318 (S.D.N.Y. 2000), *aff’d sub nom.* *Universal City Studios, Inc. v. Corley*, 273 F.3d 429 (2d Cir. 2001).

²⁹ See 17 U.S.C. § 1201(d)-(g) (specifying exceptions to liability for circumventing access control technology).

³⁰ *Id.* § 1201(c)(1).

³¹ The distinction between “access” and “rights” control mechanisms that the statute articulates has been honored by courts more in the breach than in the observance. As a practical matter, for now, “access” to a copyrighted work includes not only the customer’s or user’s initial access to the work, but any subsequent access to the work as well. See R. Anthony Reese, *Will Merging Access Controls and Rights Controls Undermine the Structure of Anticircumvention Law?*, 18 BERKELEY TECH. L.J. 619, 637-38 (2003). Technology that governs the latter is therefore subject to the stronger anti-circumvention and anti-trafficking prohibitions available under § 1201(a)(1)(A), and the DMCA, like the software license, becomes an all-purpose “access control” statute, enabling

by the software license, effected by control of the artifact as well as control over use of the work of authorship, now encoded in DRM and other technological systems.

E. FROM LICENSING TO GOVERNANCE

As information governance, the software licensing norm in all three forms carries forward some traditional features of the copyright universe. Producers of copyrighted works have always had tools that permitted them to control access to and use of both their works and the physical instantiations of their works.³² The laws of real and personal property meant that audience members could be lawfully and physically excluded from bookstores and movie theaters, and that theaters and performers could be bound to contractual film or sheet music rental arrangements. In addition, as artifacts, photographs and books were self-regulating. One could not use the work without access to a copy. Copyright owners could choose to go farther under copyright law and use licenses to define the scope of permitted use (typically among business or commercial interests), but the extent of the control over use permitted by control over the copy was limited to situations involving initial access, in true lease or rental contexts.

With digital technology and its networked form, the Internet, the physical objects of information regulation become transparent and in many cases essentially invisible. The former implicit and limited governance defined by control of access to the chattel and licensing of the copyright evaporates, and the software license tries to replicate it. The license claims to encompass all aspects of the work, which includes both the “chattel,” now dephysicalized, as well as the copyright interest. Under traditional copyright and property law, the inherent nature of physical property regulated the tangible, while copyright law used licenses to control the use. With digital technology, the software license controls both. It controls the chattel in order to control the use.³³ Moreover, the licensing model assumes that this control extends not just to the licensee’s access to the chattel or to initial access to the chattel but to any access, by any user, at any time. The networked dimension of digital information and the ubiquity of licensing of digital information multiply this effect. It is nearly impossible to find a computer program in distribution today—even one distributed for free—that is not accompanied by a license bearing the classic form and governing ongoing use of both the copyrighted work and the program itself.

control of each physical copy of a copyrighted work as well as all uses of that work—precisely as the standard license norm governs access to both the physical copy of the computer program itself (by reserving title to the code) and the use of computer programs (by delineating all forms of acceptable use). A handful of courts have resisted application of this scheme to tangible goods in which copyrighted computer programs happen to be embedded. *See* *Lexmark Int’l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522 (6th Cir. 2004) (cartridges for computer parts); *Chamberlain Group, Inc. v. Skylink Techs., Inc.*, 381 F.3d 1178 (Fed. Cir. 2004) (garage door openers).

³² *See* Jane C. Ginsburg, *From Having Copies to Experiencing Works: The Development of an Access Right in U.S. Copyright Law* (arguing that access controls have always been an implicit part of copyright policy), in *UNITED STATES INTELLECTUAL PROPERTY: LAW AND POLICY* (Hugh C. Hansen ed., 2002).

³³ Library patrons borrow and return books but acquire no ownership interest in either the copyrights or the books themselves. Customers of video rental stores acquire possession but not ownership of videocassettes. Movie studios that own the copyrights in such films argue that customers acquire a license (sometimes express, sometimes implied) to perform these audiovisual works in the home. (Technically, no such license is required, since “home” performance is not an exclusive right of the copyright owner.) The same applies to publishers of sheet music. Orchestras and choruses rent copies of scores and execute express licenses that authorize public performances of these works. The “license” in each of these contexts, whether express or implied, refers only to the copyright interests conveyed. No ownership in the tangible forms passes to the customer, who customarily expects to return the object after using it. The reproducibility of rented computer programs introduced complications to this standard account that were largely cured by the Computer Software Rental Amendments Act of 1990, which essentially prohibits rental of copyrighted computer programs. *See* 17 U.S.C. § 109(b) (2000); *Step-Saver Data Sys., Inc. v. Wyse Tech.*, 939 F.2d 91, 96 & n.7 (3d Cir. 1991).

Even before the commercial development of the Internet, mass-market licenses for computer software exhibited the kind of uniformity of terms that rendered form contracts problematic. With the coming of the Internet, the licensing norm developed for computer programs has been gradually but seamlessly extended to all forms of copyrighted works in digital form, including both “creative” websites and collections of digitized data. Technological advances, tracked by the law, are increasingly blending the analog and the digital.³⁴ Copyright law has long assumed that a “book” cannot be licensed, that is, cannot be permanently transferred to another subject to continuing conditions on its further use and disposition,³⁵ but an electronic book—the same text, rendered in digital form—clearly can be, at least under current practice. If copyright law is a publicly enacted regime of information governance, then a comprehensive privately arranged-for copyright substitute governs likewise.

Licenses govern the parties to the license. The step from govern to governance is a step up in scale, and that scale is provided by digital technology and the network—the Internet—that digital technology makes possible. Not all copyrighted works are governed by licenses. One can still buy a book or borrow one from the public library, and copyright law, not a license, still applies. With computer programs and digital works, and in the absence of a network, even a single license has a relatively limited, bilateral scope. Frequently, an individual or firm would have a meaningful choice between “licensed” works in electronic form and their unlicensed equivalents in analog form. For example, when LexisNexis and Westlaw services were supplied only via proprietary, dumb terminals, law libraries still maintained complete inventories of case reporters and statutory compilations. The digital data essentially was tied to the machine, much as older computer programs essentially were tied to mainframe computers.

It was the interoperability of computer programs and digital data across networks—the liberation of the program from the machine—that led to the explosion of digital content. It gave rise to conventional mass market licenses and now to open source licenses. It is the interoperability of digital information of all kinds across the Internet and related networks that gave rise to the anti-circumvention provisions of the DMCA. By virtue of the network, the threat of unauthorized reproduction stretches far beyond the initial parties to the license, beyond those individuals who happen to be accessing the electronic network at any given point in time. The supplier delivering an information good is concerned not only about the relationship with the recipient of that good—the initial user (who is governed by a license)—but all potential relationships with further and future users of that good (the governance worked by the license). Conventional licenses and the DMCA constitute licensing-as-governance because they treat the network

³⁴ One interesting piece of evidence of the phenomenon comes from the Creative Commons initiative, which offers forms of licenses that expressly anticipate that a work will be distributed in analog and digital forms concurrently and allow the author or publisher to customize user rights accordingly. See Creative Commons, Licenses Explained, at <http://www.creativecommons.org/learn/licenses>.

³⁵ See *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339, 350 (1908) (explaining that the sole right to read a copyrighted book does not include the right to impose, by a notice printed on the same page with the notice of the copyright, a limitation as to what price the book shall be sold at retail by future purchasers with whom there is no privity of contract). As the Supreme Court described the common-law principle in a Sherman Act case decided shortly after *Bobbs-Merrill*, “The right of alienation is one of the essential incidents of a right of general property in movables, and restraints upon alienation have been generally regarded as obnoxious to public policy, which is best subserved by great freedom of traffic in such things as pass from hand to hand.” *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373, 404 (1911) (quoting *John D. Park & Sons Co. v. Hartman*, 153 F. 24, 39 (6th Cir. 1907)). This is not to say that valid restraints on alienation are unheard of, but merely that copyright law supplies an abundance of reasons to confirm that their prohibition makes sense in the copyright context.

as a threat. The open source license constitutes licensing-as-governance because it tries to capture the benefit of the network.³⁶

The balance of this Article considers whether and when the open source model should be enforced legally and includes implicit and explicit critiques of conventional software licensing and of the DMCA. Legally speaking, courts have addressed the validity of the conventional software license, though without unanimous approval.³⁷ Those few courts that have considered the anti-circumvention provisions of the DMCA have upheld it against constitutional challenge and have relied on it to punish circumvention of a variety of technological measures guarding copyrighted works. Because widespread use of open source licenses only developed recently, the open source model is largely untested in the courts. There is no reported decision analyzing a defection by a participant in an open source licensing community, or by a developer redistributing copies of open source programs in a closed source format or without the source code of modifications. To date, when defections have occurred, they have been handled informally, under the norms of the relevant developer community.³⁸ The blending of the original norm-driven, not-for-profit “hacker” community that developed the open source ethos and the commercial interests that see open source licensing as a potentially profitable marketing tool suggests that more public, hostile, and litigated conflicts are likely.

III. THE COMMON LAW OF INFORMATION LICENSING

Ask virtually any practicing lawyer about the legal significance of a software license, and the answer almost inevitably will be framed in terms of contractual obligations and property rights. The conventional lawyer’s understanding of the software license is that it is simply a contract that defines the obligations of the licensor and licensee. The first argument for legitimacy is that software licensing relies on a legitimate but purely positive legal framework, drawn wholesale from the domain of promissory obligation wrapped around a core of property rights. Whatever the licensor and licensee agree to do, they are legally bound thereby.

Though most of the recent litigation and scholarship concerning shrinkwrap, clickwrap, and browsewrap “contracts” has concerned the question of user assent, to evaluate the claim of legitimacy based on contract law principles, it is important to go beyond the question of assent. Assume, for now, that software users assent to the forms presented to them. The question is whether assent means something in

³⁶ See James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33, 46-47 (2003) (discussing distributed production, including open source software, via distributed information governance processes).

³⁷ A number of decisions establish judicial precedent sanctioning the form of the conventional software license under which the licensor retains title to both the code and the copyright. See *DSC Communications Corp. v. Pulse Communications, Inc.*, 170 F.3d 1354 (Fed. Cir. 1999); *Triad Sys. Corp. v. Southeastern Express Co.*, 64 F.3d 1330 (9th Cir. 1995); *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993); *S.O.S., Inc. v. Payday, Inc.*, 886 F.2d 1081, 1087-89 (9th Cir. 1989); *Adobe Sys., Inc. v. Stargate Software, Inc.*, 216 F. Supp. 2d 1051 (N.D. Cal. 2002); *Microsoft Corp. v. Software Wholesale Club, Inc.*, 129 F. Supp. 2d 995 (S.D. Tex. 2000); *Adobe Sys., Inc. v. One Stop Micro Inc.*, 84 F. Supp. 2d 1086 (N.D. Cal. 2000); *Microsoft Corp. v. Harmony Computers & Elecs., Inc.*, 846 F. Supp. 208 (E.D.N.Y. 1994); *ISC-Bunker Ramo Corp. v. Altech, Inc.*, 765 F. Supp. 1310 (N.D. Ill. 1990); *Data Prods., Inc. v. Reppart*, No. 89-1291-K, 1990 WL 198610 (D. Kan. Nov. 29, 1990). Cases questioning the legitimacy of the model include *Step-Saver Data Sys., Inc. v. Wyse Tech.*, 939 F.2d 91 (3d Cir. 1991); *Softman Prods. Co. v. Adobe Sys., Inc.*, 171 F. Supp. 2d 1075 (C.D. Cal. 2001); and *Communications Groups, Inc. v. Warner Communications, Inc.*, 527 N.Y.S.2d 341 (N.Y.C. Civ. Ct. 1988).

³⁸ The highly publicized litigation between the SCO Group and IBM primarily questions the scope of SCO’s rights, if any, in computer code distributed by IBM under open source licenses.

this context. What exactly is a software license? As an agreement between two parties, a transaction concerning a copy of a computer program is a form of contract. As an expression of a limitation on access to an owner's copyright interest, a license is more akin to a form of property, though it is not a property interest as such.³⁹ The term "license agreement," though standard in the software industry, is a misnomer because it conflates these property-like and contract attributes of software transactions. Understanding the license requires eliminating that conflation.⁴⁰

In copyright terms, a license of a copyright interest is a grant of permission to exploit the unique type of property interest known as copyright. The copyright owner (the licensor) grants to some user or consumer (the licensee) permission to use the copyrighted work in some way that would otherwise be reserved exclusively to the owner under section 106 of the Copyright Act. An entire section 106 right need not be conveyed. The rights may be subdivided and combined in thousands of ways. The recipient need not formally agree to be bound by the limitations stated by the owner. The license may be revoked at any time, but the recipient is automatically bound and is liable for copyright infringement if the bounds of the license are exceeded.⁴¹

Conveyance of a right to exploit the copyrighted work of authorship is distinct from conveyance of an interest in a tangible form that embodies the copyrighted work. That tangible form may be sold to the recipient, or rented or leased (so that the tangible object is intended to be returned to its original owner),⁴² or it may be given to the recipient outright. Ordinarily the form of the transaction in the tangible good has no bearing on the character of any parallel transaction in the copyright interest, though in some cases the two transactions are conceptually and legally linked. Delivery of special effects film footage to a motion picture producer with the expectation that the footage will be incorporated into a finished film includes at least an implied license to distribute the footage.⁴³ The right to prepare a derivative work may imply the right to distribute copies of that work.⁴⁴ In both cases, however, the licensee's agreement or assent is not relevant to enforceability of the license, unless the copyright owner conditions the license on a promise of or receipt of compensation.

Contract concerns arise in four possible scenarios. First, the owner of the copyright may want to condition the license on a promise of royalties from the licensee. Second, the owner of the copyright may want to obtain the licensee's promise both not to use the work as the Copyright Act would otherwise

³⁹ The license is a transaction in neither property nor contract; the "license" means only an immunity from suit. *See* Gen. Talking Pictures Corp. v. W. Elec. Co., 305 U.S. 125 (1938).

⁴⁰ Software "licensing," as noted earlier, conflates transactions in intangible interests in software copyright and tangible interests in the "fixed medium of expression" that contains the "copy" of the copyrighted work. The software license as a copyright form applies only to the intangible. The tangible interest is addressed in the same document, but rights in that interest are governed by other law. Practitioners, scholars, and courts, however, tend to treat both as copyright problems.

⁴¹ *See, e.g.,* S.O.S., Inc. v. Payday, Inc., 886 F.2d 1081, 1087-89 (9th Cir. 1989) (discussing scope and construction of licenses); SAS Inst., Inc. v. S&H Computer Sys., Inc., 605 F. Supp. 816 (M.D. Tenn. 1985) (finding that the licensee violated an obligation of good faith in performance of the contract).

⁴² It is possible that a rental or lease arrangement could be designed so that the item is not returned after use by the lessee ends. The useful life of the item may expire concurrently with the term of the lease, and the lessor may authorize the lessee to dispose of the item rather than return it to the lessor. Whether such an arrangement constitutes an authentic lease or a disguised sale should be analyzed according to functional criteria comparable to those applied to similar questions under Article 9 of the Uniform Commercial Code.

⁴³ *See* Effects Assocs., Inc. v. Cohen, 908 F.2d 555, 558-59 (9th Cir. 1990).

⁴⁴ *See* Bourne v. Walt Disney Co., 68 F.3d 621, 631-32 (2d Cir. 1995).

prohibit (a promise that is meaningless in contractual terms, for the licensee is offering not to do something that it is already prohibited from doing),⁴⁵ and also a promise not to use the work as the Copyright Act would otherwise permit. Third, the licensee may want to obtain a promise from the licensor not to revoke the license. Fourth, the owner of the copyright may want to bargain over other commercial concerns related to use of the copyrighted work, such as limitations of liability or limitations of remedy.

Whether copyright or contract law is applicable to each of these issues involves some careful analysis. Limitations of warranty, limitations of remedy, and other purely commercial concerns, are always matters of contract and cannot be enforced except in contract law. If the licensee fails to pay royalties promised under the license, then the licensor has a claim for breach of contract. If the licensor attempts to revoke the license for reasons not permitted by contract law, the licensee has a claim for breach of contract. If the licensee exceeds the scope of the license and uses the work in a way reserved exclusively to the copyright owner under section 106 of the Copyright Act, which defines the exclusive rights of the copyright owner, then the licensor has a claim for copyright infringement. Doctrinally, the licensor's alleged breach of contract claim in such a case should be preempted under section 301 since the licensee's affront to the licensor's interest in the work of authorship is precisely the type of affront that the Copyright Act is designed to regulate. The licensee's use of the work in a way reserved exclusively to the copyright owner and forbidden under the license but permitted under section 106 raises the most difficult interpretive question. Under a strong view of copyright preemption, no copyright claim will lie and a potential contract claim will be preempted by the Copyright Act and/or by the Constitution.⁴⁶ Under a weaker view of the preemptive reach of copyright law and policy, and the one currently favored by the majority of courts, a contract claim will lie.⁴⁷

That problem need not be resolved here. The point is simply that this cluster of potential copyright and contract claims has nothing to do with the second central economic feature of software "licensing": the licensor's alleged retention of ownership of the individual copy of the program or other data file that is

⁴⁵ A line of cases decided before enactment of the current Copyright Act implicitly rejects this analysis and holds that a licensee that exceeds the scope of an express license is liable for breach of an implied covenant not to do so. *See Manners v. Morosco*, 252 U.S. 317 (1920); *County of Ventura v. Blackburn*, 362 F.2d 515 (9th Cir. 1966); *Harper Bros. v. Klaw*, 232 F. 609 (S.D.N.Y. 1916); *Underhill v. Schenck*, 143 N.E. 773 (N.Y. 1924). The preemption provision of the current Act appears to deal directly with this issue by eliminating the contract claim in favor of the copyright claim, so long as the defendant has committed an act covered by section 106. *See* 17 U.S.C. § 301(a) (2000); *see also Kabehie v. Zoland*, 125 Cal. Rptr. 2d 721, 732-33 (Ct. App. 2002) (reviewing the legislative history of section 301 and the position taken by Nimmer pertaining to contract claims regarding copyrights). Yet some courts hold that breach of the license gives rise to both copyright and contract claims. *See SAS Inst., Inc.*, 605 F. Supp. at 816.

⁴⁶ A minority of courts analyzing preemption arguments regarding contract claims consider whether the substance of the promise to be enforced is itself the "equivalent" of an exclusive right of the copyright holder, or whether the defendant's allegedly offending conduct is distinguishable from conduct that offends the Copyright Act. There are recent examples of preemption analyses that distinguish copyright interests from non-copyright interests. *See Wrench LLC v. Taco Bell Corp.*, 256 F.3d 446, 456-57 (6th Cir. 2001) (finding no preemption of claim of breach of implied-in-fact promise to pay for use of copyrighted work); *Higher Gear Group, Inc. v. Rockenbach Chevrolet Sales, Inc.*, 223 F. Supp. 2d 953, 958-59 (N.D. Ill. 2002) (stating that a contract claim for breach of license will not be preempted where licensee breached contractual promise only to use software for its own business-related benefit).

⁴⁷ *See, e.g., Bowers v. Baystate Techs., Inc.*, 320 F.3d 1317, 1323-26 (Fed. Cir. 2003) (contractual enforcement of license barring reverse engineering of computer program not preempted because claim required proof of contractual duty owed to licensor, though whether "reverse engineering" lies within the scope of the copyright owner's exclusive rights had, in other cases, been decided as a matter of statutory interpretation).

acquired by the licensee. A “licensee” that has, in economic terms, purchased a copy of a computer program (acquired permanent use of the program in exchange for some defined consideration) should be treated in copyright terms as having purchased that copy, statements in the “license” to the contrary notwithstanding. Any other result effectively treats section 109, the codification of copyright’s first sale doctrine, as a nullity in the context of computer programs.

“Copies” of computer programs might be “licensed” and therefore excluded from section 109 (since users would not “own” their copies), but there is no evidence in the statute or in the logic and history of copyright law that supports permitting owners of copyrights in computer programs to have the power to “license” copies in ways that publishers of books and phonorecords cannot.⁴⁸ Only the work of authorship may be licensed. The tangible work gets sold, rented, or leased, and then returned.⁴⁹

Courts have had a difficult time maintaining these distinctions, and in practice, the distinctions are rarely observed in neat form in the cases.⁵⁰ The analytic impulse tends to confuse the intangibility of the copyright interest and of the work of authorship that is protected by the copyright, on the one hand, with the intangibility of the computer program itself, on the other hand. Just as a copy of a book is the tangible medium of expression that contains the intangible work of authorship that copyright law regards as a “literary work,” in copyright terms, paradoxically, each copy of an (allegedly intangible) computer program should be treated as the “tangible medium of expression” in which the copyrighted work of authorship is “fixed.” Software licenses that take advantage of that paradox are playing games with basic copyright doctrine. The DMCA, which focuses on the act of circumventing technology that protects particular copies of copyrighted works, likewise skirts the edges of legitimate copyright policy when it regulates the “copy” rather than the work of authorship.

Taken together, once these strands of legal doctrine and public policy are properly sorted out, it is clear that justifying software licensing in its current form requires more than simply an appeal to basic principles of mutual assent. The contracting approach to software licenses fails ultimately because it does not acknowledge fundamental distinctions in copyright law between rights in tangible artifacts and in intangible works of authorship.⁵¹

The question remains whether background property law—the law of chattels, rather than the law of copyright—enables an owner of tangible property to attach conditions to that item, which effectively follow it from owner to successor, with or without the successor’s assent to abide by the condition. If

⁴⁸ The ready reproducibility of computer software seems not to be a sufficient justification for a different rule. The fact that users “reproduce” the program when they use it is irrelevant; Congress intended to permit that behavior when it enacted section 117, authorizing the reproduction of a copyrighted computer program in conjunction with the use of a computer. See 17 U.S.C. § 117 (2000). Reproduction beyond ordinary use is captured under ordinary infringement principles.

⁴⁹ See *United States v. Wise*, 550 F.2d 1180 (9th Cir. 1977); Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111 (1999); David Nimmer *et al.*, *The Metamorphosis of Contract into Expand*, 87 CAL. L. REV. 17 (1999).

⁵⁰ Compare *Adobe Sys., Inc. v. Stargate Software Inc.*, 216 F. Supp. 2d 1051 (N.D. Cal. 2002) (license agreement bars purchaser of “educational” copies of software from reselling to commercial purchasers), with *SoftMan Prods. Co. v. Adobe Sys., Inc.*, 171 F. Supp. 2d 1075 (C.D. Cal. 2001) (license agreement not a bar to purchaser’s disaggregating bundled software and selling it as individual programs).

⁵¹ The conceptual confusion in this area has been pointed out before with respect to stand-alone computer software licensing. See Nimmer *et al.*, *supra* note 49, at 34-41. The confusion underlies ongoing difficulty in applying statutory preemption under 17 U.S.C. § 301(a). See also Lemley, *supra* note 49, at 136-50 (discussing “click through” and “shrink-wrap” agreements).

property law does, then here at last is a foundation for modern licensing practice that could be followed back through and thus rehabilitate the previous arguments. The question has particular resonance in the context of open source models, which are supported in part on the ground that open source conditions bind the code itself, independent of assent by a particular user or developer.⁵²

The question has no clear answer. American law seems to be highly skeptical of the proposition that one might transfer permanent possession of a chattel to someone else, yet retain title in order to prohibit or condition further transfers.⁵³ Does federal law enable this kind of transaction? Courts that have validated “licenses” of computer code itself have rarely gone beyond the label attached to the transaction by the licensor or beyond the licensor’s self-described economic needs.⁵⁴ The only plausible place to look is the Copyright Act. Section 202 of the Copyright Act confirms that ownership of the object is distinct from ownership of the copyright.⁵⁵ This distinction leads, among other things, to the first sale doctrine,⁵⁶ which would make no sense without section 202. It also leads to the sensible conclusion that rights in the object are governed by the common law of property and not by federal law.⁵⁷ Section 117, which authorizes an “owner” of a copy of a computer program to make another “copy” of that program under limited circumstances, might be read as authorizing an exception to section 202 in the context of computer programs by implicitly creating a category of non-owned, that is, “licensed,” physical copies whose possessors cannot rely on section 117. Some courts have effectively read section 117 this way,⁵⁸ enabling owners of copyrights in computer programs embedded in functional devices to extinguish potential competition in markets for the devices. There is little evidence that Congress intended this result or that courts have in fact confronted the apparent conflict between these two sections.⁵⁹ Section 117 speaks of a defense available to an owner of a “copy” of a computer program who would otherwise infringe the

⁵² See Radin & Wagner, *supra* note 17, at 1312-13 (characterizing the open source license as a covenant that runs with the code).

⁵³ One might analogize this problem in the context of software licenses to the problem of “ostensible ownership” in the law of secured lending, which more than one court has characterized as “the proposition that, other things being equal, what the creditor sees ought to be what the creditor gets.” *Gaudet v. Babin (In re Zedda)*, 103 F.3d 1195, 1202 (Bankr. 5th Cir. 1997). In that context, the problems created by the debtor’s ostensible ownership of assets that are the subject of contractual security interests are cured, at least as a legal matter, by elaborate systems of filings maintained in each state under Article 9 of the UCC.

⁵⁴ See, e.g., *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993) (accepting license characterization on licensor’s documentation); *Adobe Sys., Inc. v. One Stop Micro Inc.*, 84 F. Supp. 2d 1086 (N.D. Cal. 2000) (accepting expert testimony by plaintiff’s expert that commercial software is always licensed). *But see DSC Communications Corp. v. Pulse Communications, Inc.*, 170 F.3d 1354 (Fed. Cir. 1999) (examining “substance” of transaction to determine whether licensor conveyed rights equivalent to those typically received by purchaser).

⁵⁵ 17 U.S.C. § 202 (2000).

⁵⁶ See *id.* § 109(a).

⁵⁷ The converse is also true, as rights in the intangible interest are governed by the Copyright Act and not by the common law of property. See *Dowling v. United States*, 473 U.S. 207, 216-18 (1985) (mail fraud conviction for transporting “stolen” “goods” cannot be sustained based on infringement of copyright). *Dowling* has been read narrowly by some subsequent courts. Compare *United States v. Wallach*, 935 F.2d 445, 467 (2d Cir. 1991) (emphasizing special nature of copyright law and refusing to extend *Dowling* to prosecution regarding trade secrets), with *United States v. Brown*, 925 F.2d 1301, 1307-08 (10th Cir. 1991) (holding that *Dowling* removes intangible property from scope of federal stolen property statute).

⁵⁸ See *DSC Communications Corp.*, 170 F.3d at 1359-62 (Fed. Cir. 1999) (holding that telephone companies employing copyrighted software from the manufacturer were not necessarily “owners” of the software).

⁵⁹ *But see Vault Corp. v. Quaid Software Ltd.*, 847 F.2d 255, 269-70 (5th Cir. 1988) (holding that state law cannot authorize enforcement of a property right, in the form of a software “license,” that conflicts with section 117).

copyright in the work of authorship fixed in that “copy” by making another “copy” in the course of using that program.⁶⁰ The Copyright Act defines “copies” as “material objects” in which works are fixed.⁶¹ The point of section 117 was thus to expand the range of activities permitted to users of computer software, not to authorize creation of a separate “licensing” paradigm for copies themselves.

What about the common law? Actual law on this subject is scarce.⁶² Available commentary suggests that the common law ought not to be availing. Professor Zechariah Chafee characterized efforts to burden the title to chattels, even where the new possessor took with notice of the condition, as equitable servitudes in chattels that were presumptively invalid as restraints on alienation, if not forbidden outright.⁶³ An alternative possibility is that the “license” form of the transaction in the chattel itself is a misnomer; the transaction constitutes something else. It could be a lease, a term of years, although a term of years generally ends and the property subject to the lease is returned. Software licenses could be leases in which the licensor/lessor agrees that the licensee/lessee need not return the code when the term is done or the useful life of the code has expired. Yet code never wears out (although it may obsolesce), and there is often no term associated with the license. Precedent suggests that this view would not be accepted. Most courts dealing with commercial law issues affecting licensed computer programs almost uniformly have examined the substance of the “license” transaction and decided that it was a sale, or at least a transaction sufficiently analogous to a sale that Article 2 of the Uniform Commercial Code should apply.⁶⁴

The fact that the law has not or has only incompletely recognized the form of ownership of chattels that enables software “licensing” does not mean automatically that this form should not be recognized today, but it does suggest that we should proceed with caution rather than simply accepting as inevitable the

⁶⁰ See 17 U.S.C. § 117(a) (2000).

⁶¹ *Id.* § 101 (defining the term “copies”).

⁶² *But see* McDonald’s Corp. v. Shop at Home, Inc., 82 F. Supp. 2d 801, 803-04, 817 (M.D. Tenn. 2000) (refusing to enforce, in context of a trademark case, “license” label affixed to a bag containing Beanie Baby toys purchased by the defendant).

⁶³ See Zechariah Chafee, Jr., *Equitable Servitudes on Chattels*, 41 HARV. L. REV. 945 (1928); Zechariah Chafee, Jr., *The Music Goes Round and Round: Equitable Servitudes and Chattels*, 69 HARV. L. REV. 1250 (1956); see also Thomas M.S. Hemmes, *Restraints on Alienation, Equitable Servitudes, and the Feudal Nature of Computer Software Licensing*, 71 DENV. U. L. REV. 577, 579-81 (1994). In the analog world, the law is clearer. A book publisher cannot enforce in copyright a restriction on resale prices by making the resale price a condition of the initial sale. *Bobbs-Merrill Co.*, 210 U.S. at 350-51; *cf.* *RCA Mfg. Co. v. Whiteman*, 114 F.2d 86, 87-90 (2d Cir. 1940) (refusing to enforce restrictive legend on phonograph record).

A different rule appears to apply in patent law, though the Federal Circuit has not explained why it should. See *B. Braun Medical, Inc. v. Abbott Laboratories*, 124 F.3d 1419 (Fed. Cir. 1997); *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700 (Fed. Cir. 1992) (finding that the violation of a single-use restriction accompanying a patented item may be enforceable in suit for patent infringement); Richard H. Stern, *Post-Sale Patent Restrictions After Mallinckrodt—An Idea in Search of Definition*, 5 ALB. L.J. SCI. & TECH. 1, 7 (1994) (characterizing Mallinckrodt as “simply fiat, judicial legislation” in contravention of decades of precedent). The Federal Circuit recently extended the point in holding that a holder of a patent on engineered soybean seeds could enforce a “seed wrap” or “bag tag” license that accompanied acquisition of a batch of seeds by a farmer, under which the seeds were merely “licensed” to the farmer (for use during a single season), rather than sold. See *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1298-99 (Fed. Cir. 2002) (holding that assent of “buyer” to license trumped the patent law doctrine of exhaustion, corresponding to copyright’s doctrine of first sale).

⁶⁴ See, e.g., *Specht v. Netscape Communications Corp.*, 306 F.3d 17, 28-29 & n.13 (2d Cir. 2002); *M.A. Mortenson Co. v. Timberline Software Corp.*, 998 P.2d 305, 310 (Wash. 2000).

validity of licensing-as-governance.⁶⁵ It may well be the case that we can develop the means, legally, to sustain the governance benefits that the licensing model appears to generate for information itself, without the governance costs that prohibitions on restraints on alienation are designed to avoid. The question remains: How can we do so?

IV. THE DEVELOPING WORLD OF INFORMATION GOVERNANCE

The basic problem is that the software licensing model takes two traditionally distinct concepts, control over a chattel and control over a work of authorship, and links them conceptually and formally in a governance structure that fails, as a result, adequately to denote “public” and “private” elements of information governance. Is it possible to solve the problem of distinguishing “public” and “private” governance modes for computer software, given the doctrinal tools available in copyright, contract, and elsewhere in property law? Is it possible for a software developer to distribute copies of a computer program and to make conditions on its use enforceable against successive generations of downstream users while taking account of the public domain, fair use, and other features of public copyright law? Can the licensing norm govern legitimately as it proposes to do?

A more imaginative copyright lawyer than I might design a software license so ingenious as to solve all of these problems. Within copyright law itself, section 117 offers a start, but even when read most generously (such that apparent “licenses” of copies of computer programs are properly interpreted as “sales” of those copies), it offers protection only to those who would make further “copies” of computer programs for their own use, not to those who would distribute copies for others’ use. The anti-circumvention provisions of the DMCA might even be invoked by open source developers who encode copies of an open source kernel in an effective access- and rights-protecting “technological measure,” arguably assuring that rights in the code can be exercised only in conjunction with certain technical forms, such as the source code itself. But there are complications, heightening the fragility of possible licensing-oriented solutions.

The complications are two-fold. The contrast between the intangible and the tangible that drives copyright law has been getting ever less pronounced, making this linkage more difficult to discern.⁶⁶ Technology is driving us not only toward easier technological implementation of license forms but also toward a world of information in which the “license” form itself is no longer easily understood as a legal category distinct from the information work itself.⁶⁷ The “software” to which the license applies is no longer identifiably distinct from the “hardware” on which the “software” is supposed to run, and the “technological measure” is no longer clearly distinguishable from the “work of authorship” that it is

⁶⁵ The universe of forms of property rights has historically been limited, a fact that only now is receiving theoretical attention. See, e.g., Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 YALE L.J. 1, 49-51 (2000) (arguing that the standardization of forms of property rights across a small number of defined types reduces information costs associated with transactions in property). This research dovetails with emerging arguments that emphasize the “thingness” of property. See Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1193-94 (1999) (noting inadequacies of the “bundle of rights” metaphor for property).

⁶⁶ See David Nimmer, *Brains and Other Paraphernalia of the Digital Age*, 10 HARV. J.L. & TECH. 1 (1996).

⁶⁷ This idea is manifest in the reconstruction of software licenses as part of the products to which they relate. See *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996); Robert W. Gomulkiewicz, *The License Is the Product: Comments on the Promise of Article 2B for Software and Information Licensing*, 13 BERKELEY TECH. L.J. 891 (1998) (arguing that proposed UCC Article 2B affirms industry standard licensing practice); Margaret Jane Radin, *Humans, Computers and Binding Commitment*, 75 IND. L.J. 1125, 1126 (1999) (describing conflicts over enforcement of online contracts as conflicts over models: contract-as-product versus contract-as-assent). The contract-as-thing metaphor was introduced by in Arthur Leff, *Contract as Thing*, 19 AM. U. L. REV. 131 (1970).

designed to protect. Copyright licensing assumes a given state of the world—the existence of a work of authorship, embodied in a computer program or other tangible medium—to which the rules of the licensing regime can be applied. If there is a regime of private “governance” at work, then there ought to be a set of rules and procedures, as well as a community of the governed and a population of objects whose use is regulated. In a world of technological plasticity,⁶⁸ the rules, the community, and the population of objects are merging, and the thin edge of the law that now permits us to characterize a license formally as a construct of property or contract disappears. We no longer have a system that regulates. We have a universe of objects that simply behave as they are designed to behave. Governance is not something that occurs via licensing. Governance is simply built into the program.⁶⁹ There is no “public” and no “private”; there is just the technology itself.

What does this have to do with licensing? If we expect to be able to draw effective “public” and “private” distinctions in copyright law and policy based on tangibility, the evolution of the licensing norm that already compromises that ability is about to erase it altogether. We need to be able to draw effective distinctions on some other basis, among valid and invalid forms, and (if appropriate) among “closed source” and “open source” models and DRM systems as forms of information governance. In the twenty or so years in which computer programs and other forms of digital information have been a significant part of the copyright landscape, licensing law itself has not developed any other vocabulary for doing so. The open source model may be a novel instantiation of a legal form that is being extinguished, if it was ever legitimate in the first place, by technological progress.

Professor Julie Cohen has suggested that a new licensing scheme, particularly one based on technological controls, should be assessed against a normative baseline supplied by existing law. She argues in favor of an implied right of consumer self-help, to escape from oppressive technological restrictions on access and use of copyrighted works.⁷⁰ If the design of the object is such that governance features are simply embedded in it, and those governance features deprive consumers of important rights (such as a right of private consumption or a right to share) that background law previously provided, then consumers should have the legal right to hack the designed object in order to make what history and tradition would treat as consumers’ “natural” right.⁷¹ Public interests in information law cannot be excluded from regulation solely on the basis of product design decisions.

The proposal draws a helpful distinction between conventional licenses (the right to hack is forbidden, but it should not be) and the open source model (the right to hack is assured by license). But it cannot overcome copyright’s difficulty with the tangible/intangible distinction, and it suggests that the “traditional” design of the creative environment (i.e., a population of tangible objects and a legal system for regulating them) is a normatively appropriate baseline for policy analysis. Changes to that baseline become challengeable solely on account of their design. But books (paper books) may not be normative; they merely may be accidents of technology and political economy.⁷² And stepping into the design studio

⁶⁸ Lawrence Lessig refers to the world of computer technology as “plastic” in the sense that digital technology can be relatively quickly and relatively cheaply changed to suit the needs of information producers, of the law, or of any suitably demanding interest. See Lawrence Lessig, *The Path of Cyberlaw*, 104 YALE L.J. 1743, 1747 (1995).

⁶⁹ This aspect of computer technology received broad attention through the work of William Mitchell and Lawrence Lessig. See generally LAWRENCE LESSIG, *CODE AND OTHER LAWS OF CYBERSPACE* (1999); WILLIAM J. MITCHELL, *CITY OF BITS: SPACE, PLACE, AND THE INFOBAHN* (1996).

⁷⁰ See Julie E. Cohen, *Copyright and the Jurisprudence of Self-Help*, 13 BERKELEY TECH. L.J. 1089, 1142 (1998).

⁷¹ See *id.* at 1141 (explaining “right to hack”).

⁷² See generally ADRIAN JOHNS, *THE NATURE OF THE BOOK: PRINT AND KNOWLEDGE IN THE MAKING* (1998). The author argues that the development of the printed book as intrinsically reliable, free of textual piracy, was not

is an approach that information law and public policy usually shy away from, and with good reason.⁷³ How is a judge or a legislator to know that “the state of things” that copyright historically assumed or that now exists is the “right” state of things, and that he or she should follow that instinct with a legally-protected privilege to resist change? Consumer expectations are important, and a reconstructed model of information transactions should be concerned with the relational interests of consumers at least as much as with the ownership claims of producers.⁷⁴ But consumer interests are not everything. They can be manipulated both rhetorically and substantively. In a different sense, excessive deference to consumer expectations might justify unconditional acquiescence to the licensing norm.⁷⁵

A second solution is to draw on that other regime of intellectual property rights, patent law. The patent world offers a number of advantages over the copyright world. A patent need not concern a tangible thing, and a patent, unlike a copyright, may cover a process or method. Moreover, patent law does not take the world as it is found. Patent law defines the world for itself. The patenting process starts with some technological artifact, such as a machine, a process, or a composition of matter. The inventor submits a patent application that characterizes the invention in patent-ese, hoping to have some of that description of the invention allowed as “claims.” In effect, the patenting process transforms the artifact-as-found into an artifact-in-law, giving the invention a legal identity and defining the scope of what is “found” (private) and what is “free” (public).⁷⁶ The end product is protected by a legal regime that does not depend on a chain of privity between the rights holder and the accused infringer. Copyright infringement requires copying, which means that there must be some link between the rights owner’s creation of the work and the defendant’s infringement. Patent infringement requires only an invasion of what the patent itself has declared to be “private”; the patent holder need not prove the existence of any comparable chain. Moreover, the inside/outside boundary is not defined by the artifact itself, or by the parties creating or consuming the invention, but by the operation of the legal system (theoretically acting on behalf of the public), negotiating with the inventor.⁷⁷ The scope of the “private governance” exercised by the patent instrument is not unilaterally declared by the inventor (at least, this is the way the system is supposed to work) but is itself a process that proclaims and is informed by the public interest.

inevitable. Rather, the printed book is the product of a “complex set of social and technological processes.” *Id.* at 2-5.

⁷³ See, e.g., *United States v. Microsoft Corp.*, 253 F.3d 34, 65 (D.C. Cir. 2001) (stating that courts generally view with skepticism claims of anticompetitive behavior based on product innovation); cf. *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 251-52 (1903) (noting that judges’ opinions as to whether lesser works of art (posters and lithographs) have enough aesthetic value to warrant copyright protection should be avoided).

⁷⁴ Proposals to steer information regulation more explicitly in the direction of unfair competition are correct to recognize this point, though they, too, tend to take the world of protected works as a given and re-work liability rules from that baseline. See JESSICA LITMAN, *DIGITAL COPYRIGHT: PROTECTING INTELLECTUAL PROPERTY ON THE INTERNET* 171-86 (2001); J.H. Reichman & Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 *VAND. L. REV.* 51 (1997).

⁷⁵ For the same reason I exclude “the commons” as a normative proposition, as opposed to a political or rhetorical strategy.

⁷⁶ In addition, by contrast with software licensing and its efforts to include trade secrecy protections for software developers, patent law comes with an express policy admonition favoring public disclosure of new technology and discouraging reliance on trade secrecy. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 (1989).

⁷⁷ This model is complicated by the canons of claim construction, which largely incorporate traditions and custom in the relevant industrial practice. See KIMBERLY PACE MOORE ET AL., *PATENT LITIGATION & STRATEGY* 206-13 (1999).

The notion that patent law might redeem digital information governance may be alarming to some, particularly those for whom open source licensing is a concrete response to the perceived excesses of patent law as applied to software. I do not suggest that software should be patentable, at least not in terms of the contemporary patent system. What I suggest is simply that the creation of the patent itself represents a negotiation over the scope of downstream relationships among further inventors and consumers of the relevant technology⁷⁸ in a way that resembles the negotiation among the interests now represented in software licenses.⁷⁹ The process of patenting is accompanied by a vocabulary of public and private considerations that even the most inveterate promoters of strong patents recognize as legitimate. The software licensing system currently includes no coherent mechanism for taking account of the public interest. For all of its myriad flaws,⁸⁰ patent law does. The right scheme for managing legal rights regarding software and digital information might begin from a patent-style premise, rather than from a copyright-style premise.

Let me then sketch the beginnings of a third approach, which relies on neither tradition (the right to hack) nor form (the issued patent). In determining the extent to which they will defer to private governance arrangements for real property environments, some recent courts have focused on the characteristics of the environment itself, as those characteristics are interpreted by the public. Thus, recent claims by the public for access to technically private but apparently public spaces have been analyzed not based on the “traditional” function of the space in question or the formal designation of the property as “public” or “private,” but on the basis of social understandings of its contemporary physical attributes. In *First Unitarian Church of Salt Lake City v. Salt Lake City Corp.*,⁸¹ the Tenth Circuit Court of Appeals ruled that The Mormon Church, though technically the owner of Main Street Plaza in Salt Lake City, could not enforce conduct restrictions on the behavior of citizens strolling on its sidewalks.⁸² The city had retained an easement stipulating that the block remain open to the public, and there was no indication visible to those citizens that what by all accounts appeared to be a public sidewalk was not, in fact, “public.”⁸³ In *Hotel Employees v. City of New York Department of Parks and Recreation*,⁸⁴ union organizers lost their bid for access to Lincoln Center Plaza in New York City. In ruling that the plaza was not a public space, a panel of the Second Circuit leaned heavily on the fact that its physical characteristics distinguished it and separated it from the neighboring sidewalks and connoted a “private” rather than a “public” space.⁸⁵ Such a cognitive approach to the public or private distinction has some intriguing potential applications in the information environment.⁸⁶ Digital information fails to do much, on its own, to signal its inherently

⁷⁸ See *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1529-36 (Fed. Cir. 1995) (Newman, J., concurring), *rev'd on other grounds*, 520 U.S. 17 (1997).

⁷⁹ Just as the open source model is designed to support a form of structured collaboration, it has been suggested that favoring patent protection over copyright protection for computer software would have a comparable and beneficial effect. See Mark A. Lemley & David W. O'Brien, *Encouraging Software Reuse*, 49 STAN. L. REV. 255 (1997) (arguing that reliance on software patents may encourage licensing among developers and thus more innovation in the software industry).

⁸⁰ See Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERKELEY TECH. L.J. 577, 588-91 (1999).

⁸¹ *First Unitarian Church of Salt Lake City v. Salt Lake City Corp.*, 308 F.3d 1114 (10th Cir. 2002).

⁸² *Id.* at 1121.

⁸³ *Id.*

⁸⁴ *Hotel Employees v. City of New York Dep't of Parks & Recreation*, 311 F.3d 534 (2d Cir. 2002).

⁸⁵ *Id.* at 544.

⁸⁶ See Dan Hunter, *Cyberspace as Place and the Tragedy of the Digital Anticommons*, 91 CAL. L. REV. 439, 458-72 (2003).

“public” or “private” character. A legal regime that relies on and therefore recursively encourages the development of equivalent demarcations in cultural artifacts—whether tangible or intangible or some combination—might provide a useful starting point for matching private interests in information development and distribution with interests in access and the creation and maintenance of a public information sphere.

V. CONCLUSION

The last twenty years may not have taught software lawyers much about how to talk about licensing law in coherent terms, but it has taught them that licensing is the right language to speak. The information-creating and information-consuming public may be on its way to the same condition. But the conceptual vocabulary of software and information licensing is fundamentally flawed. The effort to draft and enact the Uniform Computer Information Transactions Act (UCITA), arguably an effort to create precisely the kind of vocabulary that I suggest we still need, floundered in large part on its premise that “licensing” itself constituted a valid vocabulary for both the tangible and intangible, one that simply needed to be encoded into positive law. The DMCA is controversial and flawed for the same reason. Yet the open source model does not fight the licensing norm. Open source depends on it. On those terms open source might not succeed. In the information environment, at the end of the day the task of governing is the task of distinguishing “public” from “private.” But the licensing norm that does so comes from worlds of tangibility and intangibility, and as those worlds collapse into one, we are left only with licensing that is tangible, which is not the world that copyright anticipates, even in its most optimistic, public-oriented version. The licensed open source world is then conceptually equivalent to the licensed closed source world. What I suggest here is that if the open source model wants to govern, to produce and preserve an information commons, then it may be better off abandoning the discourse of copyright licensing and finding an alternative, perhaps in copyright law and legislation, perhaps elsewhere.

