

DIGITAL COPYRIGHT AND THE POSSIBILITY OF PURE LAW

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The word "enforceability" reminds us that there is no such thing as law that doesn't imply in itself, a priori, in the analytic structure of its concept, the possibility of being "enforced," applied by force.

— Jacques Derrida, "Force of Law"¹

I. Introduction

In 1908, the U.S. Supreme Court addressed the applicability of the Copyright Act to the new music technology *du jour*: the piano roll machine.² The question at hand was whether or not a piano roll constituted a "copy" of the sheet music that it played. If so, copyright owners could enjoin unauthorized piano rolls of the songs for which they owned the copyright. If not, piano roll producers could freely produce and market their versions of the songs. In ruling that the Copyright Act did not extend to piano rolls (and would not, absent explicit revision by Congress), the Court reasoned in a manner that will seem surprising to a contemporary ear accustomed to hearing complaints about digital music piracy:

It may be true that in a broad sense a mechanical instrument which reproduces a tune copies it; but this is a strained and artificial meaning. When the combination of musical sounds is reproduced to the ear it is the original tune as conceived by the author which is heard. These musical tones are not a copy which appeals to the eye. In no sense can musical sounds which reach us through the sense of hearing be said to be copies as that term is generally understood, and as we believe it was intended to be understood in the statutes under consideration. A musical composition is an intellectual creation which first exists in the mind of the composer; he may play it for the first time upon an instrument. It is not susceptible of being copied until it has been put in a form which other[s] can see and read. The statute has not provided for the protection of the intellectual conception apart from the thing produced, however meritorious such conception may be, but has provided for the making and filing of a tangible thing, against the publication and duplication of which it is the purpose of the statute to protect the composer. (WS, 17)

The paragraph establishes two sets of opposing terms: auditory/visual and concept/thing. The resulting important coupling is visual/thing, as it establishes a metaphysical baseline for what it means to be a copy. On the one hand, being a copy is a property inherently tied to an object; if the class of object changes, then the new object is not necessarily a copy. On the other hand, whether or not an object can be a copy in the first place is indicated by the visual intelligibility of the marks it bears. Such reliance on visual intelligibility obviates the need for deeper analysis and deflects the question of whether or not a piano roll instantiates a copy of the music it plays to the question of whether it resembles another copy of that music. In a concurring opinion, Justice Holmes expressed his surprise at this result: "one would expect that" a copyrighted object "would be protected according to what was its essence. One would

expect the protection to be coextensive not only with the invention... but with the possibility of reproducing the result which gives to the invention its meaning and worth" (WS, 19). In distinction from the Court's official opinion, one might call this an idealist or even a Platonic interpretation of copyright. Behind Justice Holmes' opinion, then, is the thought that such an object can only be measured not with reference to other objects, but according to a schema of resemblance to the *eidōs* which it instantiates.

The case has no current value as legal precedent. It generated intensive lobbying by the threatened sheet music industry and Congress promptly expanded the list of objects covered by the Copyright Act to include piano rolls, establishing a licensing scheme for mechanical reproductions of music. At the same time, the revised bill entirely exempted the performance of musical compositions on coin-operated devices, thereby serving as a significant catalyst for the development of the jukebox industry. As a historical footnote, the case thus offers a useful object lesson in the complex relationships between society, law, and technology.³ In particular, the case indicates that traditional disciplinary boundaries between law and politics are nearly impossible to draw in the case of copyright.⁴

More importantly, however, I want to suggest that the difficulty expressed in Justice Holmes' "would expect" has not disappeared. To the contrary, a fundamental question remains unanswered: what is the relationship between an object and a copy? A conceptually clear answer to this question has been unnecessary because it has always been possible to provide an *ad hoc* answer through visual inspection of an object. Authorized mechanical reproductions — authorized copies — look similar to one another, and unauthorized reproductions bear tangible evidence of degradation. Digital reproduction, however, makes such visual inspection impossible, as both authorized and unauthorized digital reproductions look the same. At that moment, one "would expect" that copyright protects the essence of the object, independent of its appearance. Indeed, this is precisely what copyright jurisprudence, which emphasizes originality, tries to do. However, absent the

baseline of visual intelligibility, there is no criterion for knowing which object legitimately embodies its *eidos* and which does not. The effects of this absence stand behind many of the battles surrounding digital reproduction. Here, I will attempt a theoretical account of the underlying conceptual ambiguity and its effects. In section 2, I discuss more precisely how digital reproduction undermines the original/copy distinction. In section 3, I show how the effects of this are manifest in contemporary debates. Section 4 attempts a more theoretical discussion, and the essay concludes with some thoughts about future developments in copyright.

The theoretical point is that copyright presently faces a difficulty first confronted by Plato in the *Phaedrus*: how does one compel the authentication of a graphic mark such that it bears the "voice" of an author, given that the mark as such is able to disguise its parentage and present itself as a self-sufficient original?⁵ In Plato's case the complaint was levied against books that allow both innocent and deliberate misinterpretation in a way that conversation with an active interlocutor would not. The Platonic insistence on the presence of an author is mirrored in copyright's assumption of the presence of authenticating marks on a legitimate copy. These authenticating marks precisely serve the function of stopping misappropriation. From such a Platonic point of view, digital reproduction signals the disappearance of orality.

II. Dirty Copies Done Dirt Cheap

The specificity of digital culture, as I will develop it here, involves two interrelated aspects. On the one hand, the marginal cost, in terms of resources or degradation, of digital reproductions approaches its limit value of zero. Since copyright is based on a system of economic incentives this precipitous drop in cost puts pressure on the copyright regime to reinstate it juridically. On the other hand, digital reproductions, because they are algorithmic, are radically device or medium independent. This independence is perhaps the most striking feature of digital reproduction as it intersects copyright. Thus freed from the specificity of a representing

device, digital reproduction further undermines barriers to distribution and thus further erodes marginal copying costs. Together, these facts say of digital reproduction what Walter Benjamin did of mechanical reproduction, namely that "the technique of reproduction detaches the reproduced object from the domain of tradition,"⁶ which is to say that a mechanically reproduced object lacks an "aura" stamping its unique existence as "determined [by] the history to which it was subject throughout the time of its existence" ("WA," 220). Such detachment undermines the ability to determine which of two objects is an original and which is a copy. As Benjamin says, "the presence of the original is the prerequisite to the concept of authenticity" (WA, 220). The development of digital media vindicates much of Benjamin's analysis.

Let us begin with a specification of "print" culture, as that can be differentiated from "digital" culture. Whatever else the distinction means, it seems to suggest that, as one commentator observes:

Ink fixed to a physical surface is the basic condition or form of print. The stability of printed information, the authority of printed information, and the trust placed in printed information derive from this physical condition and from the ability to create multiple copies of an original. . . . Printed information is also fixed to particular kinds of physical places.⁷

Two aspects of this description should be emphasized. First, print culture is inherently tied to the physicality of print media. This physicality structures all aspects of the human encounter with mass-produced print commodities. This means that, again following Benjamin, even though printed and other mass produced cultural artifacts lack aura in general, individual examples of those artifacts do carry their own history and distinguishing marks with them.⁸ For example, although, in one sense, all copies of Hegel's *Logic* are the same, the particular copy I own bears not only the graphic marks of my marginal notes, but also serves for me as a placeholder or triggering object for the memory of the trip to the

bookstore where I bought it. As Benjamin explains, for a book collector, "not only books but also copies of books have their fates" (UL, 61). As for the collector, so for the judge: a copy can be assessed for traces of its lineage, and can be judged a fraud or not. Not so for the MP3 file, which as such offers neither collector nor judge any clues as to its origin.⁹ In sum, in mechanical reproduction, although one can make indefinitely many copies of a model artifact, those copies remain tied to their instantiations in or as particular objects.

Second, this physicality founds a distinction between original and copy, or, more precisely, between officially sanctioned copies and illegitimate ones. Illegitimate copies are marked by traces of their derivative status. For example, if I take my copy of a recent commentary on Hegel's *Logic* and photocopy it, the result will be easily distinguishable from the original. Not only can one assert that a publisher owns the rights to the particular expression contained in the artifact which I then copy, but also my lack of access to the publisher's printing apparatus stamps the photocopy as an infringement. Subsequent copies of the copy will suffer similar incremental degradation. Much of the history of the development of copying technology has involved reductions in the amount of degradation suffered by copies, as the move from ditto machines to mimeographs and then photocopyers illustrates. Simply put, each technological advance makes it easier to make better copies.

These elementary aspects of print media — their physicality and the distinction between original and copy founded upon that physicality — are both substantially altered in digital media. In particular, insofar as an image or sound sequence can be represented in digital media at all, it by definition can be expressed algorithmically. In other words, it can be successfully symbolized formulaically, or as data which is then manipulated according to some formula.¹⁰ That the image or sound can be rendered symbolically makes it radically independent of any particular object. Any device which can represent the symbolized data *at all* is capable of generating an "identical copy." Since all copies are the same, any one can function as an original. Thus, the authenticating function of

proximity to an original collapses as all copies derive directly from a *de facto* original: whereas the sixth-generation photocopy of a Kevin Bacon photograph may not look nearly as good as the first, any number of generations of digital copies are never more than one degree separate from an "original."

Such collapse of iterational degradation has two consequences. First, questions of authentication are transferred from the object to the device representing it. One asks not whether one's copy is authorized, but whether one is authorized to use the device which renders it visible. By contrast, in the case of mechanical reproduction, one notices differences and degradations between copies by examining the artifacts themselves. Second, the move from object to representing device also indicates that digital objects externalize the costs of their reproduction. Rather than requiring expensive paper even to have the book, one requires an expensive video card to view the book one already has. Part of what will become apparent in the following is that copyright law is attempting to follow this externalization by imposing costs on these representing devices and their use. On the other hand, if reproduction costs are externalized, then the primary economic incentive against making copies goes away, since actually making a copy involves no cost.

Of course, the old distinction between original and copy does remain in some cases. The MP3 file format, made (in)famous by Napster, for example, succeeds in compressing music partly by eliminating some frequencies which are inaudible to the human ear.¹¹ Similarly, a digitized image of a painting will fail to capture some features of the original, as anyone who has compared the flatness of a digitized Van Gogh with an original painting will easily have noticed. However, that the print-media degradation between original and copy remains in some digital forms should not blind us to a fundamental shift occurring on at least three different levels. First, as the rapid development of compression technology such as the MP3 format suggests, the routines which are used to represent physical images are reaching a level of sophistication which makes it almost impossible for a human being to

notice the degradation. Second, an increasing amount of content is being "originally" presented in digital form. Such content runs the range from "computer" art to digital photography to movies which are "filmed" digitally. Finally, even if a digitized Van Gogh is degraded from the physical one, all copies of the digitized version will be identical, and hence the unauthorized/authorized copy distinction is difficult to make. In all of these cases, the dependence of the image on its particular physical instantiation reaches a vanishing point.

All of this matters because it generates some of the current confusion surrounding intellectual property law and cyberspace. As legal theorist Lawrence Lessig has noted, one of the ways in which computer technology challenges our current understandings of law is through highlighting "latent ambiguities" in existing legal norms. For example, he suggests that the Fourth Amendment protection against unreasonable searches actually can be interpreted in two ways, either as a protection against snooping or a protection against disruption. The possibility of non-intrusive computer surveillance forces legal and political theory to become clear about what, exactly, the amendment is designed to protect.¹² The ambiguity has been hidden by the physical constraints on the operation of the concept in actual practice. In other words, those who framed the Constitution had no reason to consider non-intrusive searches because when a regiment of British soldiers searched one's home, there was no possibility that the act was not both intrusive and disruptive.

In the case of intellectual property law, the latent ambiguity is as follows. Copyright has functioned on the assumption that to be an original or a copy is to be embodied in an object, and that this necessary embodiment provides some sort of criterion as to which objects are legitimate copies and which are not. Historically, there was absolutely no reason to challenge this assumption, as prior to the advent of digital technology it was not really possible to imagine the expression of an idea independently of a specific, tied object which bore that expression. Conversely, it was difficult to "reverse engineer" the object in order to know with sufficient accuracy how to make identical copies. Even if one could be accu-

rate, there was still the obstacle of obtaining equipment such as a printing press. Digital reproduction shows the contingency of the object/copy connection, and forces a question: is copyright to protect objects, or copies? If the former, then how can copyright function at all in digital media? If the latter, how can one precisely know the status of a copy without an attached object to disclose its pedigree? An early development of digital copyright jurisprudence illustrates the emerging problem: to load an image into a computer is, legally, to make a copy of it (*DC*, 26–28). But this is an odd construction. On the one hand, it collapses the otherwise quite intuitive distinction between looking at something and reproducing it. On the other hand, the "object" thus created — a specified electrical condition inside the computer's circuitry — seems ontologically quite different from how "object" is traditionally understood. At the very least, this "object" can bear no aura or history. It can thus do none of the work of authentication which the original linking of object and copy seemed to enable.

The piano roll decision is a case in point: the question was whether a piano roll was the kind of object that could be given copyright protection. Even Justice Holmes' dissent, in which he speculates that copyright should protect the *eidōs* of the work, and not a particular object, does not contemplate the possibility that one could make a copy without an object. So too, the 1701 British Statute of Anne, on which American Copyright law was originally based, was primarily directed at booksellers and publishers, not individual "end-users." Only booksellers and publishers had the resources to produce very many quality copies of works.¹³ Thomas Jefferson's frequently cited worry to the effect that ideas cannot be property was moot as long as copyright could reliably protect the expression of an original idea "fixed in a tangible medium." As long as tangible media were required, one could examine and regulate their distribution and production.¹⁴

But what does one do when there is no object, no tangible medium? A lot of recent attention has been directed to the originality requirement of copyright, which specifies that a copy-rightable work must be "original" (or, at least, the copyrightable

parts have to be original). Hard work at rearranging existing information (as, for example, compiling a phone book) does not make something protectable.¹⁵ The originality requirement has provoked both panic in the computer database industry, and sustained criticism of the underlying Romantic myth that authors truly create materials *de novo*.¹⁶ Here the problem is different. Granted that I am in possession of an idea, whether original or not, what does it mean to sell a copy of the expression of that idea if no object changes hands? I can resell a used book, but what about a used data file? What distinguishes a used data file from a new one? What is the *de minimis* conception of an object, and can that conception do the juridical work required of it?

More abstractly, intellectual property has always been a tough case for property in general. To take Lessig's example, if I eat your plate of spaghetti, it's not there any more, but if I take your idea, then we both have it. Ideas thus appear to be candidates for public goods, both non-rivalrous (your usage of it doesn't prevent mine) and nearly non-excludable (it is hard to stop someone from taking advantage of an idea, or to stop its dissemination). Locating the expression of the idea in an object enables a property regime because usage of an object is both rivalrous and excludable.¹⁷ Constraints — legal and material — on duplication thus ensure that usage of the object remains so. If, however, all of the material constraints on reproduction go away, one is faced with a problem. One possibility is that possession of an object bearing the idea — a computer file, for example — becomes non-rivalrous and non-excludable, in which case a copy of the "expression of an idea fixed in a tangible medium" itself becomes non-rivalrous. Alternatively, absent material constraints on reproduction, one has to rely entirely on juridical ones, which is to say that copyright has increasingly become an exercise of legal force. The former option is favored by radical opponents of copyright; the latter is closer to the direction of actual events.

III. Laying it on the Law

This preliminary sketch allows one to trace some of the current dif-

iculties facing copyright enforcement. On a basic level, pre-digital copyright law depended heavily on a non-legal enforcement mechanism, the sheer cost of making copies. Prior to the advent of digital technology, the opportunity cost of making a copy and/or distributing illegal copies could easily exceed the value of purchasing an authorized "original copy" of the commodity. Hence, significant infringers had trouble recovering their costs, and end users had fewer incentives to frequent the black market. This cost could be measured both in terms of necessary financial expenditure in making the copy — for example, color photocopiers can be very expensive investment in time, equipment, and raw materials — and in terms of the degradation of the quality of the copies. Digital copies, by removing the object-dependence of copying, drop this cost almost to zero, and thereby remove an enforcement mechanism from copyright law. However, if the marginal cost of making a copy is zero, then, as one commentator put it, "we live in a post-scarcity information environment."¹⁸ Insofar as economics depends on scarcity, and insofar as copyright is interpreted as a system of economic incentives, one would expect the copyright system to collapse under its own weight. Instead, we see the emergence of two phenomena.

First, in order to preserve its status as an economic system, the copyright regime has turned to imposing scarcity artificially. To an extent, copyright law has long embodied this artificiality. The plaintiff in a copyright infringement suit does not have to show actual harm, as one normally would in a tort case. Instead, the plaintiff need only show infringement, and harms are statutorily defined. This anomalous situation is one effect of the peculiarity of interpreting expression as property, and respects the difficulty of specifying one's loss when one still has the stolen object and when its value is in terms of future exchange value. My point here is that in a regime of digital reproduction, reliance on such juridical means will be the primary way through which copyright can function. Benjamin's allusion to the loss of history and aura is instructive. If in a regime of digital reproduction, copies have no aura and no "rit-

ual function" from which value can be derived, their value is purely exchange value, what the commodity can secure on the market. If, however, there is no scarcity in the market, exchange value cannot rise above zero: the commodity is worthless — no matter how much people enjoy its use. Hence the effort to re-establish a market by re-imposing scarcity. Lessig puts the point polemically:

If there are constraints here, it is simply because we are building them in. And . . . there are strong reasons why many are trying to rebuild these constraints: they will enable these existing and powerful interests to protect themselves from the competitive threat the Internet represents. The old, in other words, is bending the Net to protect itself against the new.¹⁹

One strategy has been used to further specify the law, removing suddenly evident loopholes that were formerly *de facto* closed by non-legal means. The case of David LaMacchia probably presents the best example of a suddenly apparent loophole which was closed by more specific statutory language. Taking advantage of a gap in the law that established criminal copyright liability only in cases of for-profit infringement, LaMacchia gave away copies of copyrighted programs on his BBS.²⁰ LaMacchia's acquittal prompted a revision of the statute; from the perspective being developed here one might add that the "spirit" of the law had been enforced by the difficulty in distributing copies, and that absent this spirit, the letter of the law had to explicitly expand to achieve the same result.

Similarly, there is increasing pressure to specify what is (and what is not) fair use. Traditionally, fair use has been a defense against infringement claims which, in essence, concedes that the action in question is technically infringement, but that it should be tolerated as either harmless or advancing a beneficial purpose. Also traditionally, fair use was determined on an *ad hoc* and juridical basis based on several factors, including the activity's probable effect on the future market value of the work.²¹ The deliberate vagueness of the procedure has been steadily undermined in

recent years. Now, for example, parody is fair use, but making multiple copies of an article for a class is not.²² Making a copy of a cassette tape is fair use (say, to play it in a car), but the availability of this defense may depend on exactly what kind of device one is using.²³ The current statute, the "Digital Millennium Copyright Act" (DMCA, passed in 1998), codifies that users are allowed to make back-up copies of computer software they purchase, but also codifies that writing programs to circumvent access control schemes is infringement, some exceptions allowed for (among others) libraries, computer security, and interoperability.²⁴ All of this suggests that the incompleteness of copyright law — for example, its dependence on physical, non-legal means for its enforcement — found an analog in the ambiguity of fair use. The disappearance of non-legal enforcement of copyright is resulting in a parallel pressure to specify fair use, if not to eliminate it altogether.

Another strategy has been a general turn to the repressive state apparatus, in what seems to be a general effort to use law to force the market to function as an image of the one that functioned in mechanical reproduction.²⁵ DVD players are coded by region, such that to play a DVD designed for one region in another requires breaking the anti-circumvention statute. The industry invested considerable energy into forcing digital audio tapes (DATs) to degrade after a certain number of copies are made.²⁶ Similarly, the RIAA sued — unsuccessfully, though they lost on a technicality — to ban the production of MP3 players.²⁷ The language of recent legal activity even suggests that the copyright industries are themselves trying to assume some of the power of the state apparatus. For example, the provision of the DMCA which allows Internet Service Providers (ISPs) to escape liability for infringement also requires that they take steps to remove offending material. There is, however, no juridical or independent verification of whether material is in fact infringing. ISPs are thus compelled to function as police in enforcing, without any due process, infringement accusations made by copyright owners. Even industry language reflects this assumption of state power; the file-sharing lawsuits of September 2003 were accompanied by an "amnesty"

program for users who admitted to file-sharing and agreed both to destroy stolen songs and never to share files again.

IV. The Night in Which All Copies are Degraded

The disappearance of copyright's enforcement through a dependence on copying costs coincides with the disappearance of the fundamental distinction between an original and a copy. The loss of this distinction is of critical importance, because original/copy provides the *ratio* through which copyright functions. Absent this *ratio*, copyright becomes, in a technical sense, unreasonable. The unreasonability emerges because, with the loss of an original/copy *ratio*, copyright is unable to perform the very function this *ratio* grounds: distinguishing between legitimate and illegitimate copies. Unable but required to perform this function, the law retreats and tries to find the grounds for such a distinction in itself. But there are no such grounds, and copyright increasingly becomes an exercise of force and the insistence on its own legitimacy. Unreasonable insistence does not present a functioning legal regime, however, it presents the implosion of a legal regime.

To see this, let us begin with the drop-off in copying costs. As I suggested above, one of the disappearing costs specific to digitality is in the degradation between copy and original. Included in this degradation would of course be the loss of the form in which the object appears. For example, a photocopied book is considerably less convenient to use than a bound one, in addition to being possibly fuzzy, streaked, etc. As the founding of the original/copy distinction on physicality suggests, the move to purely digital forms of production and reproduction eliminates this object-dependence entirely. A digital book is a digital book, and its external form depends on the viewer used to read it, not on the book itself. This means that there are no markers intrinsic to a digital copy (unless those are added) which will distinguish the first copy from the ten thousandth. The data itself is simply the data, and the computer file which contains an essay is the same on your computer and mine. If anything, any loss in the presentation of that file will be attributed

to the external features of the computer on which it is loaded. For example, an earlier version of a word processor might not support the same formatting commands.

That this state of affairs could pose such problems suggests that copyright law functions according to what Gilles Deleuze has called, in another context, a certain Platonism. Deleuze is speaking of representational schemata, particularly "Platonic" ones, where (for example) good things can be known as such because of their resemblance to the *eidos* "good." Deleuze's point is that such a representational schema fundamentally has a policing function. Allow me to quote him at length:

The true Platonic distinction . . . [is] not between the original and the image but between two kinds of images, of which copies are only the first kind, the other being simulacra. The model-copy distinction is there only in order to found and apply the copy-simulacra distinction. . . . The function of the notion of the model is not to oppose the world of images in its entirety but to select the good images, the icons which resemble from within, and eliminate the bad images or simulacra.²⁸

He suggests later that "ideas inaugurate or ground the world of representation. As for the rebellious images which lack resemblance [*simulacral*], these are eliminated, rejected and denounced as ungrounded, false claimants" (DR, 272). We should already have been prepared for this result by Plato's attack on books. Plato does not want to eliminate discourse. Quite to the contrary: he wants to secure it by ensuring that the author of an expression is correctly understood. This insurance comes at the price of denouncing forms of expression that allow for the effacement, disguise, or radical misinterpretation of the author — all those in which the author is absent, rather than present. The immediate presence of my authorial voice authenticates that those ideas that purport to be mine are in fact so. In a nutshell, Plato is concerned with piracy and infringement.

Hence, the analogy is not exact, but one wants to suggest something like the following. In intellectual property law, ideas ground the question of their representation by means of the distinction between an idea and its expression fixed in a tangible medium. This distinction, in its turn, serves primarily to ground the one between a legitimate expression or model of the idea, on the one hand, and a simulacric imposter, on the other. In the analogy to the *Phaedrus*: just as for Plato the actual presence of an author authenticates his or her expression at a given moment, so for copyright the tangible presence (or image) of the original authenticates a given copy. This is why the original/copy distinction is so vital, and why the inability to mark it in digital reproduction has such a crippling effect on the copyright regime. Consider the comments of an American law professor along the same lines, though I do not think he has an application of Deleuze in mind:

Under the rather peculiar metaphysics of copyright law, the author holds rights in the work, a sort of idealized Platonic Form, rather than in an embodiment of the work, known as a copy. One can therefore envision the case of an artist, who goes into a locked room alone, paints a painting, and then immediately destroys it. Under the statute, the artist is an author and copyright subsists in the work, although no copy exists from which anyone might infringe. The work has not been, and need not be, communicated to an audience for rights to attach.²⁹

Justice Holmes was right: copyright attaches to the *eidos*, even in the limit case where there are no instantiations of it.

Hence, in a regime of mechanical reproduction a model idea authorizes indefinitely many legitimate copies of the work, according to a production process controlled by the owner of the *eidos* of the work. Of course, none of these reproductions is the original, in that none of them has a Benjaminian aura. In that sense, as Benjamin puts it, "mechanical reproduction emancipates the work

of art from its parasitical dependence on ritual" (WA, 224), from the Platonic demand for authorial presence. However, the emancipation is not complete, as various facets inherent to the production process itself serve to maintain the plausibility of the model/simulacra distinction. In other words, mechanically reproduced art objects can still be divided into authentic and inauthentic varieties based on resemblances to the original. The interpretation of resemblances, and the work of sorting out which reproductions are authorized or not then falls to copyright jurisprudence. Copyright law, and the judicial process through which it is enforced, thus intervene, both to legitimate certain means of distribution of the models, and to provide a legal enforcement mechanism against egregious reproductions of simulacra.

Digital reproduction, however, undermines the copy/simulacra distinction. Because copy costs, broadly understood, approach their limit value of zero, it becomes impossible to distinguish between a legitimate and an illegitimate copy on the basis of the copy itself. Hence, in order to preserve the copyright protection schema, such distinctions have to be found elsewhere. This is the situation envisaged by Benjamin: "the instant the criterion of authenticity ceases to be applicable to artistic production, the total function of art is reversed. Instead of being based on ritual, it begins to be based on another practice — politics" (WA, 224). Authenticity ceases to be applicable in the very precise sense that there are no criteria for its application, no technique for knowing when an instant piece is authentic or not. In the move to politics, copyright becomes a political tool for control of the production process. One strategy is retrogressive: a sovereign fiat by which digital reproduction is forced to emulate mechanical. Hence the efforts of the copyright industry to penalize those who produce the means through which indistinguishable copies can be made. Another strategy is punitive: to target and punish individual infringers in a flurry of high-profile lawsuits.³⁰ Behind both is the same worry: consumers no longer have a reason to prefer authorized copies, which means that there is a *prima facie* reason to suspect all copies of being unauthorized. To return to Deleuze: "in the

infinite movement of degraded likeness from copy to copy, we reach a point at which everything changes nature, at which copies themselves flip over into simulacra, and at which, finally, resemblance or spiritual imitation gives way to repetition" (*DR*, 128). If the distinction between a good and a bad copy, formerly sustained by the degradation which marks the bad, has gone away, then all copies are in the relevant sense "degraded," a judgment which is enforced politically.

As the preceding passage indicates, the movement which ends in "repetition" can be said to track the collapse of a representational schema, a collapse marked here by the incremental decline in the degradation of copies reaching a point such that the difference between authorized copies and simulacra can no longer be detected. Such a moment indicates in turn that the *eidōs/copy* rubric is itself no longer in play. In this precise sense, the collapse of the copy/simulacra distinction presents a crisis of governance because no meaningful schema is able to regulate the commerce of images. Several results follow. First, this final decline in meaningful distinction marks the final decline of aura and historicity, as no simulacrum bears an authenticating history. Benjamin suggests that at this moment, the work of art is no longer governed by use value; by implication, copies produced in this mode of repetition will be governed purely by exchange value (WA, 224). Second, this marketization is accompanied by a precipitous drop in exchange value. If illegitimate copies proliferate *ad libitum*, and there is no longer a criterion to distinguish a legitimate copy from an illegitimate one, then there is no longer scarcity and thus no market. Third, if one nonetheless insists on assigning market value in such a context, the assignment can only be in the form of a regime change. One is no longer assisting market forces — one is imposing them by force of law. Since the logic of this law functions in direct opposition to the logic of proliferation, the law can only function by application of force.

In fact, it seems clear from the quantity of litigation issued by the copyright industry, as well as by the moralizing which accompanies it, that the industry perceives itself in such an endgame.

Absent non-legal mechanisms of enforcement of copyright law, the industry seeks to ratchet up the legal mechanisms as far as possible. Hence, the development of media technology has been paralleled by an increase in both the breadth of copyright law, and the penalties assigned to infringers.³¹ Legislation has been introduced to make sharing even one song online a felony.³² At the same time, the copyright statute attempts to forbid the technologies which would enable the regime of pure repetition to function in the first place, as in the forced degradation of DAT's and the prohibition of circumvention technologies. So too, there is an effort to sidestep the copyright regime altogether, by ending first sale doctrine and replacing it with a licensing schema of "digital rights management": one no longer buys copies, degraded or legitimate, but the right to access a service.³³ All of these can be viewed as an effort to reinstate a regime of scarcity.

This endgame also generates results which can seem absurd. In Metallica's suit against Napster, the band deposited at the company's offices a document of over 60,000 pages in length, listing, by name, 335,435 individual users alleged to have illegally swapped Metallica recordings on the Internet. All the while, the band insisted that "Metallica has always felt fans are family."³⁴ All of this is occurring despite the widespread belief that digital swapping of music will be fundamentally impossible to stop, if not in the form of Napster, the centralized server of which presented a convenient target, then in the form of spin-offs (KaZaA, etc.) which are completely decentralized. As these services and their users become the targets of litigation, software developers are working on other, even more anonymous, means of distribution. As one commentator put it, regarding this litigation, "the RIAA is breeding antibiotic resistant bacteria."³⁵ Another commentator used a different but similarly directed metaphor: "much in the way additional heads sprang forth as Hercules battled with the Lernaean Hydra, removing its heads with his sword, the virtual destruction of Napster has inspired the creation of countless imitations and innovations based upon the file sharing phenomenon."³⁶ In any event, most estimates are that, as of this writing, somewhere in the neighborhood of 55–60 million people share music online.

CD sales are down as much as 31% since Napster debuted in 1999, although different reports both dispute the amount of decline, and assign differing amounts of that to online sharing.³⁷

In sum, now that it is possible for actual images and their copies to be both formally and substantively equal, the juridical order turns out to be unable to make the fundamental original/copy distinction on which it is founded. At the point that one can no longer tell good copies from bad copies, the latent Platonism becomes apparent, and all copies turn out to be degraded. All of them and none of them are the *eidos* owned by the author, which means that all interchangeably are somehow bad. The law collapses into an insistence on "this" being a violation of copyright law. "This," however, indicates only its own insistence: it lacks a method of individuation or a criterion for indicating what it is pointing to. Hence the disjunction between the violent insistence on the law on the one hand, and the infinite proliferation of copies on the other. Absent the ability to distinguish between different acts of the imposition of the law, we are left only with the constitutive violence of the law itself, and its effort to impose the copyright regime as such.

V. Coda

A few thoughts in conclusion. First, and foremost, if the above analysis is correct, *ad hoc* tinkering with the current copyright regime cannot be expected to address the issues posed by digital reproduction. Increasing the penalties for copyright infringement, increasing the scope of criminal (as opposed to civil) infringement, decreasing the range of allowable "fair use," increasing the duration of copyright protection, attempting to criminalize copying technology, and attacking individual infringers are all tactics recently employed by the copyright industry, and none of them have made a real dent in digital copying. They should not be expected to do so. The collapse of the ability to distinguish legitimate from illegitimate copies puts severe pressure on the ability to conceive of intellectual property as property; as a consequence,

IPR's become increasingly resistant to being treated by traditional remedies for theft.

To acknowledge this would effect a tremendous change in the discourse surrounding intellectual property. For one, claims that IPR's are somehow naturally property in the way that physical objects can be property will be shown for what they are: false. Although it is also correct to say that stealing a bicycle is only theft when so defined by the law, stealing a song is even less naturally a theft in that ideas are not rivalrous and so stealing one does not deprive anyone else of its use. As Lessig says in a slightly different context, "patents are no more (and no less) 'property' than welfare is property" (*FI*, 212). The construction of intellectual property as naturally like physical property has been feasible until now because economic factors in reproducing intellectual properties made them seem to be naturally rivalrous.

Digital reproduction shows that this sort of scarcity has nothing inherently to do with the objects themselves, but is instead externally imposed. In the absence of copying costs in the form of degradation or reproduction costs, scarcity is legally imposed. But a legal regime runs into a Platonic problem: the laws are either unnecessary (because people voluntarily obey them for cultural or other reasons) or unenforceable. Policing the entirety of the Internet hardly seems a viable option, either technically, or politically in a country with strong free expression rights. In any case, these copyright laws can be circumvented by virtually anyone, and so enforcement becomes nearly impossible in the absence of sufficient police power. In this case, the enforcement may be in principle impossible, due to the sheer magnitude of the Internet, the number of people who share music online, and the presence of difficult jurisdictional issues and countries without strong copyright regimes.

This augurs a troubling result, at least from the point of democracy and particularly from the point of view of free expression: the exit from an intellectual property regime to a contract one. This is digital rights management, and it represents a move on the part of the copyright industry to the other way to differentiate *meum et tuum*; if not property, then contract. However, the con-

tract regime contemplated by the copyright industry follows a model which was long ago rejected in other contexts by Western democracies. According to such a contract regime, two autonomous agents freely negotiate the terms of their contract. The widespread prevalence of practices like child labor gave the lie to this understanding of contract in the early twentieth century, and it does not take a great conceptual leap to see that an individual negotiating with Universal Studios has little more relative power than does a child against a coal mining magnate.³⁸ At the very least, then, it is time for government to intervene and proactively level the "negotiating" field. More troubling than this, however, is the conceptual possibility that vast amounts of the "information commons" will become the subject of private regulation. Many commentators have addressed this issue; here I simply wish to indicate that it is perhaps the most pressing issue posed by the collapse of the copyright schema, since it is digital rights management into which copyright seems to be being *aufgehoben*.

1 Jacques Derrida, "Force of Law: The 'Mystical Foundation of Authority,'" *Cardozo Law Review* 11 (1990): 921-1039, 925.

2 *White Smith Music Publishing v. Apollo*, 201 U.S. 1 (1908). Hereafter cited in the text as *WS*.

3 In other words, the shape of 1950s culture owes a lot to a contingency in the drafting of the Copyright Act of 1909. For the history of the piano roll case and subsequent legislation, see Jessica Litman, *Digital Copyright* (New York: Prometheus Books, 2001), 35-69, esp. 38-40. Hereafter cited as *DC*. The classic discussion of the relationship between technological or architectural decisions and subsequent development is Langdon Winner, "Do Artifacts Have Politics?" *Daedalus* 109 (1990): 121-36, interpreting the low height of Long Island's bridges as a deliberate effort to keep buses off the island's beaches. For the argument that Winner's interpretation makes for a good parable but bad history, see Bernard Joerges, "Do Politics Have Artifacts?" *Social Studies in Science* 29 (1999): 411-31. Joerges' basic point is that Winner is too much of a determinist and that he relies on too strong of a concept of intentionality. Rather, Joerges suggests, "the power represented in built and other technical devices is not to be found in the formal attributes of these things themselves. Only their authorization, their legitimate representation, gives shape to the definitive effects they may have" (424). The latter point should be retained in the present context. For a fascinating discussion of all the social decisions involved in an artifact as simple as a door, see Bruno Latour, "Where are the Missing Masses?"

The Sociology of a few Mundane Objects," in *Shaping Technology/Building Society*, eds. Wiebe E. Bijker and John Law (Cambridge: The MIT Press, 1992), 225-58.

More precise reasons for this will become apparent. The legal basis for copyright in the U.S. Constitution, which gives to Congress the power "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries" (Art. I, §8). The statutory scheme is thus broadly based on economic incentives, but without that constraint is largely undetermined by Constitutional law. Most changes to copyright law thus involve the political process, and the courts will generally defer to it. For example, the Court recently rejected a challenge to the Copyright Term Extension Act of 1998 (which retroactively extended Copyright to 70 years plus the life of the author, up from 50 years previously (17 U.S.C. §302(a))). The challenge argued, *inter alia*, that this could no longer reasonably be interpreted as a "limited" duration, especially since one could hardly imagine authors suddenly finding the incentive to produce more work, just because their estate could reap financial benefits from it for 70 years after their death, instead of merely 50. The Court concluded that "we find that the CTEA is a rational enactment; we are not at liberty to second-guess congressional determinations and policy judgments of this order, however debatable or arguably unwise they may be." See *Eldred v. Ashcroft*, 537 U.S. 186 (2003). The CTEA was, in turn, substantially the product of lobbying by Disney, which feared the loss of Mickey Mouse revenues to the public domain. See "Disney Lobbying for Copyright Extension no Mickey Mouse Effort; Congress OKs Bill Granting Creators 20 More Years," *Chicago Tribune* (Oct. 17, 1998), 22.

I am of course referring to Derrida's reading of Plato's dialogue: see Jacques Derrida, "Plato's Pharmacy," in *Dissemination*, trans. Barbara Johnson (Chicago: University of Chicago Press, 1981), 61-171. At least one commentator credits Holmes' dissent and the 1909 Act with having "invented the concept of the medium-independent data structure." See Joseph H. Sommer, "Against Cyberlaw," *Berkeley Technology Law Journal* 15 (2000): 1145-1232, 1230.

Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, ed. Hannah Arendt (New York: Schocken Books, 1968), 217-252, 221, hereafter cited as *WA*.

M. Ethan Katsh, "Rights, Camera, Action: Cyberspatial Settings and the First Amendment," *Yale Law Journal* 104 (1995): 1681-1717, 1704.

Walter Benjamin, "Unpacking my Library," in *Illuminations*, 59-68. Hereafter cited as *UL*.

This is a theoretical point. Recent litigation by the Recording Industry Association of America (RIAA) involves claims to be able to determine that defendants' files are of illegitimate origin. This information is largely in the files' "metatags" — contingent information which could be removed, if desired, by a careful user or by some sort of "cleansing" program. The industry has floated various schemes to watermark legitimate files, but these have all almost immediately been hacked. For the RIAA's assertion, see "RIAA Details Kazaa User's Huge Song Cache," *Los Angeles Times* (Aug. 28, 2003). For the litigation in general, see note 30, below, and accompanying text.

See Michael E. Hobart and Zachary S. Schiffman, *Information Ages: Literacy, Numeracy, and the Computer Revolution* (Baltimore: Johns Hopkins University

Press, 1998). In other words, the object independence of digital images is tied to the specification of the digital computers which represent them. As the instantiation of a Turing machine, a digital computer is precisely defined as the device which allows such formal, "logically malleable" manipulation of symbolic data.

11 For a lucid summary both of how MP3's work, and of the Napster case, see Timothy James Ryan, "Infringement.com: RIAA v. Napster and the War Against Online Music Piracy," *Arizona Law Review* 44 (2002): 495-520.

12 See Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999), 111-18, hereafter cited as *CL*.

13 For the history, see, e.g., Calvin D. Peeler, "From the Providence of Kings to Copyrighted Things (and French Moral Rights)," *Independent International and Comparative Law Review* 9 (1999): 423-56.

14 Jefferson writes: "if nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it." Thomas Jefferson to Isaac Macpherson, Aug. 13, 1813; qtd. in Lessig, *CL*, 132.

15 *Feist Publications v. Rural Telephone Service Co.*, 499 U.S. 340 (1991).

16 For example, recent litigation has concerned rap music sampling. For a history and critique of the romanticism, see Boyle, *Shamans, Software and Spleens: Law and the Construction of the Information Society* (Cambridge: Harvard University Press, 1996). For further critique, highlighting the violence that the culturally specific assumptions of Western copyright do to traditional cultures (where individual authorship is not valued or even necessarily known), see Angela R. Riley, "Recovering Collectivity: Group Rights to Intellectual Property in Indigenous Communities," *Cardozo Arts and Entertainment Law Journal* 18 (2000): 175-225.

17 I realize that ideas are not purely non-excludable, as various forms of censorship suggest, and that objects are not purely excludable. However, the difference in excludability between them should be self-evident.

18 Luciano Floridi, *Philosophy and Computing* (London: Routledge, 1999), 83. Cf. also Slavoj Žižek: "does not the prospect of the informational 'global village' signal the end of market relations which are by definition based on the logic of scarcity, at least in the sphere of digitalized information?" *The Ticklish Subject* (London: Verso, 1999), 357; emphasis in original. The disparity between commodity costs and copying costs is nowhere more clearly illustrated than by the almost self-evident problems in the music industry's periodic claim that for each illegal digital copy made, it loses the sale of one \$18 compact disc. Presumably there are many people who would do something for free but would not pay \$18 for the same result.

19 Lawrence Lessig, *The Future of Ideas: The Fate of the Commons in a Connected World* (New York: Random House, 2001), 16. Hereafter cited as *FI*.

20 See *United States v. LaMacchia*, 871 F. Supp. 535 (1994); corr. 1995).

21 17 U.S.C. § 107 (2001).

22 For parody, see *Campbell v. Acuff-Rose Music*, 510 U.S. 569 (1994); the restrictions on classroom photocopying actually date to 1976 and were developed in a series of guidelines: see *Agreement on Guidelines for Classroom Copying in Not-for-Profit*

Educational Institutions with Respect to Books and Periodicals, H.R. Rep. No. 94-1476 (1976), 68-70.

23 The defense was codified into the Audio Home Recording Act of 1992; see note 26, below.

24 For a short summary and critique, see Pamela Samuelson, "Why the Anti-Circumvention Regulations Need Revision," *Communications of the ACM* 42.9 (September 1999): 17-21. Exemplary litigation surrounds DeCSS, a program which allows users to copy DVD's onto systems for which authorized players are not available. Along the way, it breaks their copy protection scheme. The plaintiffs claim that the program violates the anti-circumvention clause and the defense claims that it falls within the interoperability exemption. So far, courts have ruled in favor of plaintiffs: see *Universal Studios, Inc. v. Corley*, 273 F.3d 429 (2001). DeCSS also touches issues of free expression (discussion of which is well outside the scope of this paper), as various plaintiffs have tried to suppress the distribution of the underlying source code and technique. This litigation is ongoing, and involves both issues of trade secrets and the expressive status of computer code.

25 This statement could of course be rendered obsolete. It should be emphasized that other business models exist: As of this writing, the music industry has generally resisted these in favor of the status quo, suggesting that the industry views the technology as enabling the possibility of both the perfect enforcement of ownership rights and the expansion of those rights against "the public." For this view, see Lessig, *CL*, 122-41. For alternative business models, see the closing pages of Ariel Berschadsky, "RIAA v. Napster: A Window onto the Future of Copyright Law in the Internet Age," *Marshall Journal of Computer & Information Law* 18 (Spring 2000): 755-89; and Litman, *DC*, 156ff. For thoughts on the relationship between IPR's, technology, and the "public," see my "Thoughts on the Fetishization of Cyberspeech and the Turn from Public to Private Law," *Constellations* 10 (2003): 113-34.

26 Per the Audio Home Recording Act of 1992, 17 U.S.C. §§1-10. As Litman suggests, "the required technological fix, in essence, disabled consumer digital recording devices from implementing their superiority to analog devices. Perhaps this is part of the reason that digital tape recorders and digital tape failed to sell very well" (*DC*, 60). Computers avoided the AHRA because the statutory language was so specific that it could not be extended to computers. For further discussion, see Lessig, *CL*, 46-47.

27 *Recording Industry Association of America v. Diamond Multimedia Sys., Inc.*, 180 F.3d 1072 (9th Cir. 1999). Earlier, the motion picture industry tried to stop the distribution of Sony Betamax VCR's on the argument that they facilitated copyright infringement by allowing users to tape copyrighted material. In the landmark *Sony Corp. of America v. Universal Studios*, 464 U.S. 417 (1984), the Court ruled that since the technology had "substantial non-infringing uses," its distribution could not be blocked. In a sense, Sony only postponed the problem, however, as the Court resolved the issue as a matter of fact (conceded evidence by both parties indicated that most home video recording was in fact primarily "time shifting" — taping a program to watch it later), but not as a matter of law. Hence, Napster's legal defense included the argument that the service should be considered under the Sony rubric, as having such non-infringing uses. However, "substantial" is a vague term, and its application to Napster begged a question: Napster's defense was not so much that

actual non-infringing use was "substantial," but that it *could* be. Does "substantial" name a structural possibility, or an actual practice? Assuming that it means the latter, what is the threshold amount of use above which it becomes "substantial," rather than an aberration?

28 *Difference and Repetition*, trans. Paul Patton (New York: Columbia University Press, 1994), 127, hereafter cited within the body of the essay as *DR*. The thought that Plato's ideas are political as much as (or even more than) metaphysical constructs is heterodox and I will not pursue its validity as a reading of Plato here. For a strong reading of the *Republic* along these lines, see Claudia Barrachi, *Of Myth, Life and War in Plato's Republic* (Bloomington: Indiana University Press, 2002).

29 Dan L. Burk, "Patenting Speech," *Texas Law Review* 79 (2000): 99-162, 128.

30 The RIAA has begun, as of September 2003, to file lawsuits in federal court against individuals who share music online, a process that began late in the spring with the subpoena of those individuals' identities from their ISPs. Generally, ISPs's litigated to be allowed to refuse RIAA demands for customer names, and generally the RIAA prevailed. Also, the current lawsuits follow the RIAA's settlement, earlier in the year, of cases against four college students that it had sued for file sharing. For balanced presentation of the events, see David Hechler and Aaron Lauchheimer, "Recording Industry Begins to Target Illegal Music Downloads and File Sharing Online," *New York Law Journal* (Aug. 18, 2003); and Daphne Eviatar, "Record industry, music fans out of tune: In war over downloading, lawyers take on industry's core consumers," *The Recorder* (Aug. 20, 2003).

31 For example, consider criminal infringement. This occurs in one of two ways: either (a) willfully "for purposes of commercial advantage or private financial gain" (17 USC 506(a)(1)), in which case the maximum penalty for a first offense is five years imprisonment plus a substantial fine (second offense is up to ten years) (18 USC 2319); or (b) "willfully by the reproduction or distribution, including by electronic means, during any 180-day period, of 1 or more copies or phonorecords of 1 or more copyrighted works, which have a total retail value of more than \$1,000" (17 USC 506(a)(2)), in which case the prison terms are up to three and six years respectively. This would seem to imply that a college student who participates in peer-to-peer file sharing services could, if those are deemed to be direct infringement, be sent to jail.

32 "House Bill Aims to Up Stakes on Piracy," *Los Angeles Times* (July 17, 2003).

33 For brief general discussion and criticism, see Litman, *DC*, 111-21 and Joseph Menn, "Software Makers Aim to Dilute Consumer Rights," *Los Angeles Times* (Feb. 4, 2000), A1 (financial desk). One could adduce a substantial bibliography of legal scholarship opposing this maneuver; for a start, see David Nimmer, Elliot Brown and Gary N. Frischling, "The Metamorphosis of Contract into Expand," *California Law Review* 87 (1999): 17-77. Nimmer *et al.* are criticized in Joel Rothstein Wolfson, "Contract and Copyright are Not at War," *California Law Review* 87 (1999): 79-110. See also the criticisms in Charles R. McManis, "The Privatization (or 'Shrink-Wrapping') of American Copyright Law," *California Law Review* 87 (1999): 173-90; Julie E. Cohen, "Copyright and the Jurisprudence of Self-Help," *Berkeley Technology Law Journal* 13 (1998): 1089-1143; and Julie E. Cohen, "Lochner in Cyberspace: The New Economic Orthodoxy of 'Rights Management,'" *University of Michigan Law Review* 97 (1998): 462-563.

34 "Metallica on MP3-Swap Services: Kill 'Em All," *The Internet Standard* (online) May 2, 2000, www.thestandard.com/article/display/1,1151,14708,00.html (accessed May 2, 2000).

35 Clay Shirken, *qtd.* in "Crackdown May Send Music Traders into Software Underground," *New York Times* (Sept. 15, 2003).

36 Ryan, "Infringement.com," 516.

37 For file-sharing numbers, see "Labels May Face Risk in Piracy Suits," *Los Angeles Times* (June 27, 2003). The RIAA claims a 31% decline; Forrester Research statistics suggest half of that (15%), with only a third of that attributable to file-sharing. See "File-Sharing Battle Leaves Musicians Caught in Middle," *New York Times* (Sept. 14, 2003), which includes the different statistics and discusses the frustration felt by many musicians (who do not own the rights to their songs) at seeing their fans sued in their name or in the name of royalties which they never see. Some evidence suggests that lawsuits against individual infringers are reducing the numbers a bit: "Group says legal strategy has reduced file-swapping," *Houston Chronicle* (Aug. 22, 2003).

38 Actual events would seem to bear this point out: the industry recently settled, for over \$143 million, a series of anti-trust lawsuits essentially alleging industry CD price-fixing. See "Record distributors and retail chains settle class action lawsuits," *Entertainment Law Reporter* (August 2003). For a lucid and relatively brief theoretical review of the problems with this contract regime, see Margaret Jane Radin and R. Polk Wagner, "The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace," *Chicago-Kent Law Review* 73 (1998): 1295-1317; and the articles cited in note 33, above, especially Cohen, "Lochner in Cyberspace."