I. INTRODUCTION

Digital technologies permit the wide distribution of perfect copies at virtually no marginal cost. Evidently this poses a problem for content providers: how could they make money if their product is freely available after its first sale?

As we all know, reframing the copyright laws has become the answer. Notably, these revisions were an integrated international policy campaign, not distinct national fights. The newly extended control, based on legally reinforced digital “containers” and trade law, arguably permits those who sell content effectively to “enclose” the public domain, to insulate their business models, and to define technological development.

In this article, I will argue that content providers are “recreating the bottle” around their intellectual property, using digital technologies to reinforce their business models and supplant copyright. The content industries have successfully driven political fights, dramatically strengthening their control of content in the digital era. International treaties and agreements have been leveraged to strengthen and enforce intellectual property protection, forcing a globally “harmonized” reformulation of national laws. The resulting copyright policies have not been a simple translation of the old laws and enforcement mechanisms to a new technological era. In the revision of the intellectual property laws, the content industries claimed new power to control their intellectual property.

Secondly, I will show that the new policies adopted have undermined the traditional balance in intellectual property law between creator compensation and limits on the creator’s exclusive rights. IP law was created to foster a vibrant public domain by encouraging the creation and exchange of knowledge. Recent developments have shifted that balance with a dramatic and one-sided strengthening of intellectual property rights. These policies empowered digital containers, or code, and trade law as the new
enforcers of intellectual property rights, but did not pay complementary attention to user rights and the public domain.

Finally, I will argue that the particular resolution of the copyright debate arguably has powerful implications beyond the content industries or the balance of intellectual property. It could influence the trajectory of technological innovation, indeed shaping the network's architecture itself and the business models that harness its capacities. Consider as only one example that many contend that network expansion is driven not by content distribution, but by the expansion of point-to-point communications. Yet, the intellectual property rules concocted for content will powerfully shape the architecture of the network. Will the network itself, as a result, evolve differently and even more slowly than would otherwise be the case?

Furthermore, it appears that the major firms in the content industries have the power to insulate themselves against competitive pressures that would force change in their strategies and business models. Rather than being forced to adapt and innovate, they have entrenched their position and set the stage for its reinforcement, the continuous expansion of intellectual property rights. At the moment it appears that the walls around the content industry incumbents\(^1\) are very powerful -- are there holes through which newcomers can enter? Would such entrants break the mold; for example, could peer-to-peer unravel the existing deals? Will affirmative policy action be required to assure ongoing innovation in business models and technology?

## II. THE ARGUMENTS ELABORATED

Copyright enforcement, and the balance between content providers and the public, was predicated on a tangible balance of powers between creators and consumers, a metaphoric bottle, where a substance is at once contained and yet available to be circulated. But some fear that the bottle is vanishing, that the emergence of networked digital technologies has challenged, and then changed, copyright's original deal. Copyright is a delicate balance, addressing information's duality as both input and output of knowledge creation: copyright reserves rights for creators to incentivize production, and limits those rights to facilitate the exchange of ideas.

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\(^1\) The most powerful of these incumbents are conglomerate producers and distributors of content, such as AOL TimeWarner in print media and the Motion Picture Association of America, who represents the major Hollywood studios, and the Recording Industry Association of America.
Copyright was enforced and its delicate balance was upheld largely by default. Large-scale copyright infringement was mainly precluded by the difficulty of replication and distribution, which left the market for authentic (creator-licensed) versions intact. Limitations on the exclusive rights of copyright were also realized by default: once sold, producers could no longer control the private usage of their works.

With little significant change, copyright has proven remarkably adaptable to technological change, and content producers have been forced to adjust to evolving technologies.² They could invent new business models to harness the capacities of the innovations, but could not use the law to insulate themselves against innovation.³

Digital technologies have two components that undermine the enforcement mechanisms inherent in tangible media. First, information goods can now be perfectly replicated by users, or with such a marginal loss of quality as to render a near-perfect copy. In itself perfect replicability would generate a real challenge to those who hold rights to content. Amplifying this effect, however, is the capacity to distribute those ones and zeros across the network. The “bottle,” in its traditional sense, is vanishing.

The formerly noncommercial act of infringement may pose a disproportionately large threat in the modern era: in the digital era, you don’t have to own a factory to reproduce and distribute pirated music...you just need a computer and a phone cord.⁴ Unlike previous challengers, such as the VCR and photocopier, networked digital technologies and peer-to-peer capacities exponentially increase the impact of a single violation.

Simultaneously, these technologies open new capacities for architectural control of the information flows they facilitate, empowering a new regulator: code.⁵ Code is the stuff of which digital

infrastructure and software applications are made. Digital products are constructed entirely of digitized elements from this programming; their encoded architectures have the power to set and enforce a particular set of terms and conditions. This regulatory mechanism differs sharply from conventional law in that it is perfectly self-enforcing. Thus, not only do encoded technical architectures set the norms and rules of access and usage, they enforce them independently.

A. PROPOSITION ONE: RECREATING THE BOTTLE

Content owners responded quickly to what they called the "digital threat," arguing that these new capacities for individuals to privately reproduce and distribute copyrighted material would destroy the market for sales of their intellectual property. Furthermore, intellectual property owners/distributors are concerned that national variation in intellectual property rights (IPRs) and enforcement undermines the value of their property. Weaker standards for legal protection and enforcement permit unauthorized use and copying, or "piracy," which, they argue, translates into lost revenues. The content industries’ concerns have taken on a new urgency with increased economic globalization.

Responding to this two-part threat, content owners have pushed new standards for IP protection. In both domestic and international fora, their successful lobby has produced a strikingly different approach to copyright, regulating technologies themselves and allowing copyright holders to insulate themselves against change.

Two major developments mark the content industry’s victory and permitted them to remake the "bottle." The first set of policies reinforces the new digital capacities to control content, empowering privately constructed code. The same technologies that seemed to pose a digital threat were transformed into mechanisms of IP control. Content owners can now use code to control their intellectual property: new anti-circumvention provisions prohibit technologies that could be used to circumvent measures used to protect copyrighted material. Unlike traditional containers, such as books and analog tapes, digital media are constructed from a highly structured architecture. Copyright owners may no longer need the formal law of copyright: the


6 LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (1999).
code will enforce itself, according to rules and standards set by the owners themselves.

Second, the newly created WTO-TRIPS sets and enforces global standards for IP. The WTO-TRIPS Agreement legitimizes and institutionalizes the content industry's longstanding effort to strengthen and enforce IP protection globally, reframing IP as a trade issue. Some would argue that the WTO will take on its own independent institutional capacity to govern IP issues. At a minimum, as a treaty and a court, it will frame the debate and structure the fights.

1. **REGULATING THROUGH CODE**

After the content industry's first efforts to technologically protect their works failed, a broad industry coalition (hereinafter "Content") pressured the Clinton Administration and Congress for legislation that would make digital media safe for online distribution of their works. Characterizing new "user capacities" as a deadly threat, content producers successfully captured the Administration's attention.

Content's agenda quickly became the driver of U.S. intellectual property policy-making effort. Content targeted the Clinton Administration's working group on intellectual property whose 1995 "White Paper" articulates the U.S. digital agenda that has driven policy-making efforts, both domestically and internationally, to date. That agenda formed the basis of the outcomes in three critical arenas: the World Intellectual Property Organization integrated the agenda in its 1996 Copyright Treaty; the U.S. codified the agenda in its 1998 Digital Millennium Copyright Act; and the European Union followed in 2001 with its Copyright Directive. The EU had been anxious to be the first to codify the implementation, and to set the legislative precedent for copyright's adaptation. Despite the European Commission's rushed efforts to draft a Copyright Treaty, the U.S. again set the precedent, in its 1998 Digital Millennium Copyright Act.

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The ostensible goal of the agenda was to make the digital environment safe for the sale of copyrighted works. These policies went beyond a mere extension of traditional copyright to digital media. Calling on the potential for new technical capacities to encode architectural protections, Content convinced policymakers that legal reinforcement for such technical protection systems was necessary to bridge the transition to the network era.

Voicing Content’s concerns, these policies argue that the nature of network technologies demands technical incapacitation of possible violators, rather than reliance on the threat of liability as a deterrent. The anti-circumvention measures are intended to reinforce technical protection for copyrighted works, by making it illegal to circumvent such efforts. The anti-circumvention provisions prohibit the manufacture or distribution of any device, technology, or service whose primary purpose or effect is to circumvent (without the authority of the copyright owner or the law) any mechanism that protects an exclusive right of copyright.

In its broad reinforcement of technical protection schemes, this policy approach gives copyright owners the right to define and enforce privately architected terms of access and usage, whose variable conditions may extend far beyond the exclusive rights of copyright. This approach gives copyright holders control over any digital transmission of their works, restricting intellectual property to an unprecedented degree.

The process by which these policies were crafted is worth noting. Content providers arguably leveraged an international institution to re-open its domestic battle. The Clinton Administration had planned to first seek domestic legislation of the agenda, and then press the agenda abroad, at the upcoming World Intellectual Property Organization meeting. Though the first effort to adopt these recommendations failed in both houses, the Administration did not

9 Lehman, supra note 8.
11 Lehman, supra note 8.
12 National Infrastructure Information Copyright Protection Act of 1995.
14 The World Intellectual Property Organization is the administering body of the Berne Convention, an international treaty established to set minimum standards for intellectual property laws in all member nations.
15 See the Digital Future Coalition webpage, at http://www.dfc.org/dfc1/Active_Issues/graphic/DMCA_index.html, detailing the history of the DMCA.
reformulate the agenda. Instead, the Administration reversed its course, successfully pressing its agenda at the WIPO meeting. The agenda that so heavily favored the content coalition found new life at the World Intellectual Property Organization’s meetings, and became the basis for the WIPO Copyright Treaty (1996). The Administration was then able to return to the US for domestic implementation of the treaty, rather than policymaking-from-scratch, and at this stage, a version of the Content-proposed solution was probably unavoidable.

It is worth noting that an international organization was not merely the vehicle for reconciling competing international positions, but rather became another channel for a domestic fight. The WIPO Copyright Treaty functioned as both a vehicle for extending a national agenda abroad, and the tool of a particular set of domestic interests to force a second round in a domestic fight.

Trade policy is another important instrument in the copyright wars: Though content providers have consistently pushed to raise standards for intellectual property protection, their efforts have found new success recently. As IP has taken on increasing economic significance, national differences in IP protection have become a source of tension in international economic relations. The WTO-TRIPS was created to address and remedy these differences. TRIPS establishes international rules to set and enforce minimum standards for IP protection, and acceptance of the Agreement in full is compulsory upon joining the WTO.

TRIPS was not the first international attempt to harmonize standards for IP protection. The Berne and Paris Conventions, administered by the World Intellectual Property Organization (WIPO), set forth minimum standards for IP protection. These Conventions and their Appendices are upheld by member states’ voluntary acceptance -- member states can choose the treaties with which they wish to comply -- and cooperative reciprocity.

Building on the standards articulated in these Conventions, TRIPS has been dubbed by some the “Berne and Paris-plus Agreement.” The WTO-TRIPS Agreement incorporates these Conventions, and adds two significant elements to the package.

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16 World Trade Organization’s Agreement on Trade-Related Aspects of Intellectual Property Rights, created out of the Uruguay Round ending 1994. Intellectual property is now considered one of the three pillars of the trade organization, joining goods and services. For more information, see http://www.wto.org/english/tratop_e/trips_e/trips_e.htm

17 Notably, TRIPS incorporates all aspects of the Paris and Berne Conventions except the sections relating to "moral rights" of authorship, a strong
First, TRIPS establishes new and strengthened IPRs, where those of the Paris and Berne Conventions were considered “inadequate.” Second, and most importantly, administration under the WTO includes new mechanisms for formal oversight and dispute settlement.\(^1\)

With the creation of the WTO-TRIPS Agreement, we have shifted from WIPO’s cooperative treaty system to a rule-based trade system, newly enforceable under the “Trade Supercourt.” International rule of law for intellectual property now has bite.

B. PROPOSITION TWO: UNDOING THE BALANCE

The tactics employed by content owners not only recreated the IP bottle but also dramatically shifted the balance of control between creators protections and consumers rights.

First, it is the privately-architected nature of code that gives it such power: at present, there are no rules as to what code must allow, no body of rights and regulations to govern these digital walls, passages, and checkpoints. Content owners can set their own terms of access and use, terms that may effectively enclose the public domain within private holdings of the copyright owner. As such, copyright’s crucial limitations and exceptions are facing a stealth attack, embedded in the structure of the media themselves.

Second, TRIPS’ trade-based approach to intellectual property undermines the complex balance of values IP was created to protect and uphold, and marks a conscious and deliberate effort to reframe these issues according to a narrow set of economic preferences.\(^{19}\) Compensation for creation, designed to be merely a means to achieve an enriched public domain, has now become the focus and end goal of intellectual property protection.

\(^{1}\) The Council for Trade-Related Aspects of Intellectual Property administers TRIPS, and monitors national implementation/compliance with the Agreement. National governments are required to notify the Council of any change in their IP law, and the Council serves as a forum for member review and consultation on TRIPS. All dispute resolution is conducted under the WTO formal mechanism.

\(^{19}\) Question for discussion: does a trade-based approach inherently shift this balance? Or have the politics surrounding TRIPS’ creation imposed this particular set of values and preferences on international IP governance?
To maintain a vibrant public domain, do we need to translate copyright’s limitations, such as the principle of fair use, from their traditional form to create equivalents for a digital era? Does this require affirmative policy action or, as some argue, will the market achieve IP’s underlying goals, diversity in information production and an enriched public domain?

The first policies/treaties to reformulate copyright for the digital era claimed to be mere translations and moderate adaptations of copyright’s traditional balance, an update for new technologies. Changes in these two domains shift the balance between copyright holders and the public domain. First, while these policies reinforce Content’s new capacities to digitally control their content, copyright’s crucial limitations are wilting without viable reinforcement. Second, the shift to a trade-based regime may provide content owners with a tool to consistently strengthen intellectual property rights.

C. Harnessing Code to Supplant Copyright’s Limitations

Copyright was designed to promote the exchange of ideas. To incentivize creation, copyright grants authors specific rights in their work, but these rights are bounded by key limitations that protect public access to and use of the intellectual property. First, “fair use” privileges exempt certain types of use from copyright infringement, without the prior permission of the copyright holder. These privileges serve to protect personal and educational uses whose social value outweighs the author’s interests. Second, after copyright’s expiration, public usage of the work is entirely unrestricted.

Thus, intellectual property was never “propertized” in a traditional sense. Rather, its balance was carefully crafted to create a public domain, a virtual space in which ideas, knowledge, and expression are free for public appropriation. The public domain underpins the cumulative creation of knowledge, building upon the body of knowledge and information that already exists.

Despite their crucial function, many of the former limits on copyright have been functionally ignored in debates about how to
reformulate intellectual property for a digital era.22 The recent anti-circumvention policies reinforce the new capacities for increased control over content, giving copyright owners the right to use code to preclude access entirely, or prohibit particular uses of their works. This reinforcement effectively strengthens copyright, but this strengthening has not been matched by comparable reinforcement of copyright’s limitations.23

Responding to concerns raised by Content’s opposition, these laws did officially address copyright’s balance and limitations, affirming the need to uphold a balance between content owners and users and extending the traditional limitations into the digital era.24 The policies intentionally ignored the matter of real importance, however: privately constructed code changes the game, creating mechanisms for near-perfect, permanent control of information goods and services.

Copyright’s limitations, recall, hinge on access to the content in question. Copyright’s limitations were not affirmative rights, however, because they didn’t need to be. In tangible media, the user had the right and means by which to claim their privileged use. If you could “get your hands on it,” you could make use of copyrighted materials. In some cases, this usage would be infringement, in others fair use, but the first decision was the users’. The wrong choice was only liable for copyright infringement after the fact. Thus, copyright’s limitations functioned primarily as a guideline and a defense.25

Many argue that copyright’s digital update has undermined this balance. Content owners can use digital technologies to build elaborate fences around content, defining and technically enforcing the terms of use and access. Unlike the traditional methods of copyright enforcement, encoded architectures do not have to comply with any law or standard, superceding copyright’s limitations.

Because the architect sets the rules, these systems can be used to control content in radically new ways, including, for example, the

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24 The anti-circumvention provision of the DMCA, for example, stipulated “nothing in this section shall affect rights, remedies, limitations or defenses applicable to copyright infringement, including fair use.”

25 MERGES AND MENELL, supra note 20.
enclosure of intellectual property in private holdings.\textsuperscript{26} How so? First, encoded architectures do not expire. Digital works elude any ‘publication date’ from which expiration could be calculated. Second, fair use can be entirely precluded. A mere statement of rights as legal \textit{defense} is powerless: if one can’t access code-protected works, one can’t \textit{claim} a legitimate use.\textsuperscript{27} Fair use, the long-time counterbalance to the exclusive rights, is now subject to the discriminate authorization of private actors.

The evident question is whether the concerns of the Content coalition could have been met without undermining \textit{either side} of the present balance between protection of copyright holders and users. Did we have to make a stark practical choice between protection and fair use? An alternate strategy would require more than a re-assertion of the rights of fair use and the importance of the public domain. The balance had to be reconstructed.

In addition to reinforcing Content’s new capacities to protect their exclusive rights, policymakers needed to innovate and include an \textit{equally innovative mechanism} by which to protect fair use, which now meant a \textit{means} to generate and maintain the possibility of fair use. Nothing, however, was included to provide for the realization of the traditional exceptions, nor have the policies compensated for these losses.\textsuperscript{28} The end result: public access is now the incidental by-product of the market for intellectual property sales, rather than its primary justification.\textsuperscript{29}

\section*{D. Using Trade as an Instrument to Strengthen Intellectual Property Protection}

Empowered code is only the first part of the story of strengthened IP protection and its shifting balance. The WTO-TRIPS enforcement mechanism may be used as a tool for content producers to \textit{systematically} strengthen and enforce IPRs globally, and may erode its underlying balance.

\begin{itemize}
\item \textsuperscript{26} Samuelson, \textit{Technological Protection}, supra note 5. See also Lawrence Lessig, “Internet Regulation Through Architectural Modification,” subsection D, at \url{http://www.harvardlawreview.org/issues/112/7_1634.htm}.
\item \textsuperscript{27} David Nimmer, \textit{A Riff on Fair Use in the Digital Millennium Copyright Act}, 148 U. PA. L. REV. 673-742 (2000).
\item \textsuperscript{28} Post-adoption joint study, anti-circumvention hearings: comments from the Electronic Frontier Foundation and the D.C. Library Association.
\item \textsuperscript{29} With the DMCA, Congress affirmed and legitimized content owners’ increased control and abandoned copyright’s traditional technological neutrality. In addition, the DMCA lends the weight of the state to \textit{closed} encoded architectures, which may have adverse effects on the architecture of the network.
\end{itemize}
A trade-based approach assumes and imposes a set of economic assumptions on IP. The TRIPS Agreement reframes IP according to this narrow economic framework, legitimizing content producers' pressure on other nations to strengthen their IPRs. Indeed, TRIPS provides content owners the mechanism by which to drive this strengthening. As such, a trade-based regime may unravel the complex balance of values IP was created to protect and uphold. What is more, because the IP deals vary cross-nationally, this externally-crafted compromise will have different consequences for each of the WTO's member-states and their national polities.\textsuperscript{30}

In TRIPS, content producers won endorsement for their reformulation of GATT's commitment to reduce trade barriers. In theory, the reduction of trade barriers should increase global trade, benefit all participants, and facilitate the diffusion of wealth across borders.\textsuperscript{31} Traditionally, this meant encouraging the equal treatment of goods, whether foreign or domestic in origin, and reducing tariffs. In the Uruguay Round, IP owners argued that national differences in the level of protection for IP are a barrier to trade; content producers would be more willing to produce and distribute their products abroad if rules were uniform. Embedded in their argument, however, is the assumption that insufficient, rather than merely variable, IPRs were the barrier. Though this argument is controversial, TRIPS incorporates the notion that strengthened IPRs will encourage trade and economic development.

The content industries can now use the WTO to ratchet up IPRs by playing one jurisdiction off the other: TRIPS institutionalizes and legitimates the use of trade sanctions to strengthen and enforce IP protection. This trick is not a new one: IP owners have regularly pressured trade representatives to impose unilateral trade sanctions against countries with weaker IP protection. Their battles were multi-front, however, and their outcomes less significant: IP owners pressed for bilateral agreements, but their victories were narrow.

TRIPS consolidates these battles, channeling them into two institutions. First, TRIPS assigned WIPO and its Conventions a new legislative significance: its treaties fall within the TRIPS standards.\textsuperscript{32}

\textsuperscript{30} Many argue that TRIPS will systematically transfer resources from developing (IP consumer) to industrialized (IP producer) countries.

\textsuperscript{31} The advantages of trade-based agreements, access to other countries' markets and equal treatment within those markets, supposedly outweigh the costs, costs that include ceding some control over the rules and dynamics of national economies.

\textsuperscript{32} These treaties were never crafted to come before a formal enforcement mechanism, however.
Second, member-states can now use the WTO's dispute resolution mechanism to 'regulate' compliance with these standards.33

Content's battles are now fought, and have been won, in the policymaking processes at the WTO and WIPO.34

While TRIPS resolves some trade tensions, it introduces new frictions, as it imposes a narrowly-construed version of economic efficiency on a matter of cultural and social welfare. Like the other policies to update copyright to the digital era, TRIPS acknowledges the need to strike a balance between IP producers and users. What TRIPS does not acknowledge is that it shifts that balance in favor of IP owners. The economic preferences according to which these issues will be settled reframe the matter entirely. A trade regime tends to systematically neglect those issues it deems economically inconsequential or unquantifiable. As a result, a trade-based approach may undermine the purposes for which IP protection was crafted, diversity in information production and an enriched public domain.

Compensation was formerly a tool, and now seems to be the end itself.

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33 TRIPS is not a powerful institution in its own right: its treaties must be adopted by consensus, its dispute resolution is member-instigated.33 Thus, with TRIPS, the WTO becomes the mechanism by which countries adjudicate their differences over IP. Many argue that the WTO dispute resolution mechanism will become a tool by which the industrialized countries export stronger standards for IP protection. For example, the US can threaten India with cross-product sanctions on textiles as punishment for lackadaisical IP enforcement. India holds no such 'trump' card. Interview with Peter Holmes (August 10, 2001).

34 Whether the US continues to use its 'special 301' process to achieve higher standards of protection/ more favorable terms in negotiations with less-powerful states is an interesting question. Though arguably its sanctions are no longer necessary, because IP can now be enforced through a legitimate WTO decision, the US refused to remove the 301 sanctions from its laws (promising to use them only as authorized by the WTO).