

NAPSTER'S SECOND LIFE?: THE REGULATORY CHALLENGES OF VIRTUAL WORLDS

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INTRODUCTION

Imagine a world with millions of people communicating and transacting, a world just like ours except that it is made entirely of bits, not atoms.

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Ten years ago, Internet pioneer and Grateful Dead lyricist John Perry Barlow imagined such a radical world—cyberspace.¹ He saw people interacting without the constraints of national rules. They would be independent from regulatory fiat and unbound by the mandates of Washington, Paris, London, Berlin or Beijing. His vision relied on information traveling over a global network at lightning speed, with content living off server farms² in nations with little regulation, weak enforcement, or both. In this world of global regulatory arbitrage,³ organizations could relocate their servers to jurisdictional safe havens overnight.⁴ Servers might pop up in exotic places like Aruba⁵ or Costa Rica,⁶ or places outside any jurisdictional reach, like the vacated Sealand-like⁷ oilrigs of the North Sea⁸ or even space.⁹

¹ John Perry Barlow, A Declaration of the Independence of Cyberspace (Feb. 8, 1996), <http://homes.eff.org/~barlow/Declaration-Final.html> (“Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind You have no sovereignty where we gather.”).

² A server farm is a cluster of individual computers that are usually deployed to share and distribute heavy loads and provide redundant capabilities. See Wikipedia, Server Farm, http://en.wikipedia.org/wiki/Server_farm (last visited Sept. 13, 2006).

³ See A. Michael Froomkin, *The Internet as a Source of Regulatory Arbitrage*, in BORDERS IN CYBERSPACE 129 (Brian Kahin & Charles Nesson eds., 1997); Viktor Mayer-Schönberger & Tere E. Foster, *A Regulatory Web: Free Speech and the Global Information Infrastructure*, 3 MICH. TELECOMM. & TECH. L. REV. 45, 56 (1997); Joel Trachtman, *Cyberspace, Sovereignty, Jurisdiction, and Modernism*, 5 IND. J. GLOBAL LEGAL STUD. 561, 577–78 (1998). But see Dan L. Burk, *Virtual Exit in the Global Information Economy*, 73 CHI.-KENT. L. REV. 943, 961–72 (1998); Viktor Mayer-Schönberger, *The Shape of Governance: Analyzing the World of Internet Regulation*, 43 VA. J. INT’L L. 605, 617 (2003) [hereinafter Mayer-Schönberger, *The Shape of Governance*].

⁴ With increasing pressure on online gambling operators in the U. S., for example, companies have moved to foreign tax and data havens. See, e.g., Matt Richtel, *Companies Aiding Internet Gambling Feel U.S. Pressure*, N.Y. TIMES, Mar. 15, 2004, at A1. See generally Michael Anastasio, *The Enforceability of Internet Gambling Debts: Laws, Policies, and Causes of Action*, 6 VA. J.L. & TECH. 6 (2001); Joseph M. Kelly, *Internet Gambling Law*, 26 WM. MITCHELL L. REV. 117 (2000); Beau Thompson, *Internet Gambling*, 2 N.C. J.L. & TECH. 81 (2001).

⁵ In 1999, Antelecom installed two submarine fiber optic cable systems: PANAM (1x2.5 Gb/s), which connected Aruba with St. Thomas (USVI), Panama, and Venezuela; and *Alonso de Ojeda* (2x2.5 Gb/s), which connected Aruba with Curaçao. For technical details about the submarine fiber optic cables to Aruba, see the International Cable Protection Committee’s timeline of cables in the Caribbean at Submarine Cables of the World: AWG Regional sub-menu, <http://www.iscpc.org/cabledb/caribbean.htm> (last visited Sept. 19, 2005). In 1999, Antelecom N.V. merged with Setel N.V. Curaçao to become United Telecommunications Services (UTS). See United Telecommunications Services, <http://www.uts.an/company/organization.htm> (last visited Sept. 19, 2005).

⁶ For example, although the Costa Rican-based internet gambling site *BetonSports.com* is not allowed to do business in the United States, it has 1.2 million registered customers there, which accounted for 98% of its revenue in 2003. *American Citizens Want To Gamble On The Internet*, BUS. WK., Dec. 20, 2004, at 67.

⁷ In 1967, Roy Bates, a retired British army major, occupied an abandoned World War II island fortress six miles off the English coast and declared it a sovereign nation, the Principality of Sealand. The former flak platform hosts a firm called HavenCo, which operates a data center, providing server space out of reach of national law enforcement agencies. For a history and analysis of the case of Sealand, see Frank B. Arenas, *Cyberspace Jurisdiction and the Implications of Sealand*, 99 IOWA L. REV. 1165,

Barlow was not alone; others, too, had hoped that his vision would turn into reality.¹⁰ Still others, however, feared that result, and he and his compatriots were heavily criticized, even ridiculed.¹¹ Humans, it was argued,¹² cannot escape their physical presence. People shall always remain in the real world, because this is where their online actions have consequences. It is where the products that people purchase online get delivered to their doors, where the membership fees they pay for an online service get charged to their credit cards, where the money that they deposit in PayPal is debited from their bank accounts, and where their account balances are only replenished by the toil of their working lives. To these critics, Barlow's vision of life in cyberspace was an incomplete version of what life really is. So long as the online world remained tethered to the real world, jurisdictions would be able to enforce their rules—through cooperation with other jurisdictions,¹³ unilateral enforcement,¹⁴ or the regulation of supporting in-

1167–69 (2003). The official website of the government of Sealand can be found at The Principality of Sealand, <http://www.sealandgov.com> (last visited June 1, 2005).

⁸ See, e.g., Simson Garfinkel, *Welcome to Sealand. Now Bugger Off*, WIRED, July 2000, at 230–39, available at <http://www.wired.com/wired/archive/8.07/haven.html>; John Markoff, *Rebel Outpost on the Fringes of Cyberspace*, N.Y. TIMES, June 4, 2000, at A14.

⁹ See Alex Markels, *The Next Wave*, WIRED, Apr. 2001, at 174, 176, available at <http://www.wired.com/wired/archive/9.04/sealaunch.html> (mentioning the SeaLaunch consortium, which installs satellite-based streaming distribution networks that will hop over the Internet's backbone and transmit content directly to the last-mile providers, or even bypass the internet completely).

¹⁰ The most frequently cited article in line with Barlow's views is David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367 (1996).

¹¹ See Jack L. Goldsmith, *Against Cyberanarchy*, 65 U. CHI. L. REV. 1199, 1199–1200 (1998); Timothy S. Wu, Note, *Cyberspace Sovereignty—The Internet and the International System*, 10 HARV. J. L. & TECH. 647, 664–65 (1997). Andrew L. Shapiro called it “cyber-romanticism at its worst.” Andrew L. Shapiro, *The Disappearance of Cyberspace and the Rise of Code*, 8 SETON HALL CONST. L.J. 703, 709 (1998); see also Charles Fried, *Perfect Freedom or Perfect Control?*, 114 HARV. L. REV. 606, 618 (2000) (book review) (calling the “cyberspace metaphor” “hyperbolic, if not somewhat fatuous”).

¹² See LAWRENCE LESSIG, CODE, AND OTHER LAWS OF CYBERSPACE 21 (1999) (“You are never just in cyberspace; you never just go there. You are always both in real space and in cyberspace at the same time.”); Goldsmith, *supra* note 11, at 1215–16 (arguing that “[c]yberspace is not, as the skeptics often assume, a self-enclosed regime”); Jack L. Goldsmith, *The Internet and the Abiding Significance of Territorial Sovereignty*, 5 IND. J. GLOBAL LEGAL. STUD. 475, 476 (1998) (stating that “[t]he Internet is not as many suggest, a separate place removed from our world”); Shapiro, *supra* note 11, at 709.

¹³ A prominent attempt to codify international cooperation is the Council of Europe's Convention on Cybercrime, which aims at harmonizing cybercrime laws internationally and stipulates procedural mechanisms for mutual assistance in the prosecution of cyber criminals. See Council of Europe, *Convention on Cybercrime*, at pmbl., (Nov. 23, 2001), available at <http://conventions.coe.int/Treaty/en/Treaties/Html/185.htm> (stating that “[t]he member States of the Council of Europe and the other States signatory hereto, . . . [b]elieving that an effective fight against cybercrime requires increased, rapid and well-functioning international co-operation in criminal matters” have agreed to certain provisions for combating cybercrime); see also Marc D. Goodman & Susan W. Brenner, *The Emerging Consensus on Criminal Conduct in Cyberspace*, 2002 UCLA J.L. & TECH. 3, at pt. III.A.3; Shannon L. Hopkins, *Cybercrime Convention: A Positive Beginning to a Long Road Ahead*, 2 HIGH TECH. L.J. 101 (2003); Mike Keyser, *The Council of Europe Convention on Cybercrime*, 12 J. TRANSNAT'L L. & POL'Y 287 (2003); Amalie M. Weber, *The Council of Europe's Convention on Cybercrime*, 18 BERKELEY TECH.

L.J. 425 (2003). See also the agreement among the G8 to battle cybercrimes and cyberterrorism, G8 Summit 2001, *Final Communiqué* ¶ 33, available at <http://www.g8.utoronto.ca/summit/2001genoa/finalcommuniqu.html> (“We encourage further progress in the field of judicial co-operation and law enforcement, and in fighting corruption, cyber-crime, online child pornography, as well as trafficking in human beings.”); Conference of the G8 Ministers of Justice and Interior, Milano, *Communiqué*, Feb. 26–27, 2001, at ¶ 14, no. 3, available at <http://www.g8.utoronto.ca/adhoc/justice2001.htm> (“we undertake to mobilise resources to fight against organised crime through international cooperation”); G8 Kyushu-Okinawa Summit 2000, *Final Communiqué*, Jul. 23, 2000, at ¶ 44, available at <http://www.g8.utoronto.ca/summit/2000okinawa/finalcom.htm> (“We must take a concerted approach to high-tech crime, such as cyber-crime, which could seriously threaten security and confidence in the global information society.”). International standardization organizations provide another example, especially when they work with national government agencies. On their role, see Stanley M. Besen & Joseph Farrell, *The Role of the ITU in Standardization: Pre-eminence, Impotence or Rubber Stamp?*, 15 TELECOMM. POL’Y 311 (1991); Krishna Jayakar, Comment, *Globalization and the Legitimacy of International Telecommunications Standard-Setting Organizations*, 5 IND. J. GLOBAL LEGAL STUD. 711, 737–38 (1998).

¹⁴ Such an extreme approach of extending state governance beyond traditional borders is epitomized by recent cases regarding the use of trademarks for domain names. Normally, two companies trademark the same name in different states, but litigate over trademark infringement if one company sets up a website which is also accessible in the other company’s state. See, e.g., *Minn. Mining & Mfg. Co. v. Taylor*, 21 F. Supp. 2d 1003, 1005 (D. Minn. 1998) (granting preliminary injunction against defendant’s use of post-it.com, post-its.com, and ipostit.com, reasoning that such use would likely dilute plaintiff’s Post-it mark); *Zippo Mfg. Co. v. Zippo Dot Com, Inc.*, 952 F. Supp. 1119, 1121 (W.D. Pa. 1997) (plaintiff manufacturer of Zippo tobacco lighters alleging trademark dilution, infringement, and false designation against online computer news service for use of domain names zippo.com, zippo.net, and zipponews.com.); *Toys “R” Us, Inc. v. Akkaoui*, 40 U.S.P.Q.2d (BNA) 1836, 1838–39 (N.D. Cal. 1996) (granting preliminary injunction against “adultsrus.com” or any other colorable imitation of plaintiff’s mark for Internet sites and reasoning that use of such domain names tarnishes plaintiff’s Toys “R” Us and Kids “R” Us trademarks). See also James H. Aiken, *The Jurisdiction of Trademark and Copyright Infringement on the Internet*, 48 MERCER L. REV. 1331, 1349–50 (1997) (arguing for a broad scope of jurisdiction); Ian C. Ballon, *Rethinking Cyberspace Jurisdiction in Intellectual Property Disputes*, 21 U. PA. J. INT’L ECON. L. 481, 486–87 (2000) (stating that under Rule 4(k)(2) of the Federal Rules of Civil Procedure it is “easier for a U.S. resident to obtain jurisdiction over a foreign defendant than over a fellow U.S. resident”); Jane C. Ginsburg, *Copyright Without Borders? Choice of Forum and Choice of Law for Copyright Infringement in Cyberspace*, 15 CARDOZO ARTS & ENT. L.J. 153, 171–72, 174 (1997) (suggesting that if a suitable link can be established, jurisdiction in the United States should be assumed, even if actual copyright infringement happens abroad); Lea Hall, *The Evolving Law of Personal Jurisdiction for Trademark Infringement on the Internet*, 66 MISS. L.J. 457 (1996). Similar cases can be found in the area of Internet gambling. For example, the Minnesota Attorney General filed suit against a Belizean Internet gaming operator, although the activity was perfectly legal there. See *State v. Granite Gate Resorts, Inc.*, 568 N.W.2d 715 (Minn. Ct. App. 1997); see also *United States v. McDonough*, 835 F.2d 1103, 1104–05 (5th Cir. 1988) (rejecting defendant’s argument that the Wire Act did not apply to him because gambling information had been transmitted to him in Massachusetts, and because there were apparently no laws in Massachusetts that explicitly forbade the transmission of wagers into the state, and instead holding that although O1084(b) permits the transmission of gambling-related information when gambling is explicitly authorized in both the sending and receiving states, it was never intended to authorize gambling when only one of the two locales permits gambling); *State v. Fiola*, 576 A.2d 338, 340 (N.J. Super. Ct. App. Div. 1990) (holding that the defendants’ business constituted gambling activity within the state of New Jersey and thus violated the state’s gambling laws, since the New Jersey Constitution prohibits any type of gambling unless the constitution has been amended to explicitly permit the specific type of gambling); *People v. Kim*, 585 N.Y.S.2d 310, 312 (Crim. Ct. 1992) (holding that the use of a computer system to transmit orders for out-of-state lottery tickets was illegal since “[a]ll forms of gambling are illegal in New York except those expressly authorized by the New

frastructures like international financial networks.¹⁵ To these critics, Barlow's vision should remain just that: a vision.

But imagine a world in which Barlow's vision became real: a digital realm where people interact, buy products, sell their services, maintain relationships, and actively engage in their community with little linkage to the physical world. In this place, one could create a new identity whenever her old persona grew tiresome, or exploit weaknesses in the underlying software architecture to create opportunities for arbitrage, or even cause monetary spillovers into the real world. And all attempts to subjugate this realm to the real world's rule of law would ultimately be in vain.

In this world, real-world lawmakers would discover to their horror that applying the very same strategies that had worked so well in countering Barlow's vision would have the exact opposite effect: instead of undermining, compromising and crumbling the new world, and reducing this Barlow vision redux to its constituent digital bits, the force of traditional law would only exacerbate, facilitate and accelerate cyberspace's realization. And in this world, no matter the methods regulators used—save shutting down the global network—the greater the vigor they put into their actions, the faster and more spectacularly they would fail.

Most importantly, imagine this process happening not because of a supposedly inescapable “law” of technological progress impressing its will on society, but because of the more human and less avoidable laws of economics. Imagine a market of dozens of competing virtual worlds, where the forces of supply and demand drive us towards a world of human interaction, commerce, and transaction, each of these worlds creating a simulacrum of the real world, except for one crucial shared omission in their designs: national laws as we know them would not exist.

Imagine—no more.

In this article, we examine the phenomenon of virtual worlds like *Lineage*, *EverQuest* and *Second Life*, and use law and economics to plot a probable trajectory for how the real-world legal system will interact with these worlds. We argue that virtual worlds—as commercial enterprises—must vie for users, leading them to engage in regulatory competition with each other by offering effective (“good”) governance as well as (intellectual) property rights to users. This dynamic is already visible in the marketplace. Such a strategy, however, will also make users more mobile and

York Constitution”); *Scherr v. Abrahams*, No. 97 C. 5453, 1998 WL 299678 (N.D. Ill. May 29, 1998) (denying jurisdiction although the defendant's website allowed users to contact him via email, and he sent his publication to users via email). See generally Goldsmith, *supra* note 11, at 1208.

¹⁵ For example, the Unlawful Internet Gambling Funding Prohibition Act (UIGFPA) proposed in 2003 required financial institutions to take steps to identify and block gambling-related transactions that are transmitted through their payment systems. See H.R. 21, 108th Cong. (2003); see also Mark D. Schopper, *Internet Gambling, Electronic Cash & Money Laundering: The Unintended Consequences of a Monetary Control Scheme*, 5 CHAP. L. REV. 303, 318–29 (2002) (examining the monetary control scheme under the UIGFPA as a method of dealing with Internet gambling).

thereby accelerate competition among virtual worlds. Fueled by a surge of people participating in virtual worlds, we argue that real-world lawmakers will wish to extend the reach of national legal frameworks into virtual worlds. Inspired by how Napster was reined in, this extension of reach may come through national regulation of virtual world providers. Such a move, however, is likely to backfire. Not only will national regulation increase competition among virtual world providers operating in different jurisdictions (and thereby cause second-order regulatory competition), but it will also push virtual worlds along the same path that the regulation of Napster pushed music sharing—towards a decentralized peer-to-peer model in which providers themselves disappear, and with them almost any hope on the part of real-world lawmakers to directly influence the governance inside virtual worlds.¹⁶ As a result, law as we know it—territorially bounded and democratically legitimized—could vanish altogether from online interaction and be replaced by a new set of rules (leading one to conclude that John Perry Barlow’s vision might be valid after all, albeit in a much different sense than he thought). As an alternative to this dystopian ending, we suggest that national lawmakers facilitate the creation of robust self-governance structures within virtual worlds rather than “napsterizing” virtual world providers.

One important disclaimer is in order. In mapping out this future trajectory, we base our analysis on an economic understanding of regulatory frameworks, and emphasize the role of economic forces in this regulatory dynamic. Because virtual world providers are commercial enterprises, we believe economic forces will retain central importance in how virtual world providers behave as regulators. We do not pretend, however, that an economic analysis is the only possible one and encourage others to add to the growing literature on the subject.

Each of the following sections presents a particular vector of analysis. In Part I, we describe virtual worlds, including their growth, size and likely trajectory. In Part II, we examine governance within virtual worlds. Part III describes the economics among virtual worlds. Part IV lays out the consequences for regulatory frameworks within virtual worlds stemming from virtual world economics. Finally, Part V suggests options for real-world lawmakers who are intent on regulating virtual worlds.

¹⁶ For a discussion of the legal and economic implications of peer-to-peer systems, see, for example, Gartner G2 & The Berkman Center for Internet and Society, *Copyright and Digital Media in a Post-Napster World, Version 2* (Jan. 2005), <http://cyber.law.harvard.edu/media/files/wp2005.pdf>; Seagrump Smith, *From Napster to Kazaa: The Battle Over Peer-to-Peer Filesharing Goes International*, 2003 DUKE L. & TECH. REV. 0008, at ¶¶ 10–12 (giving an overview of the enforcement problems regarding offshore peer-to-peer providers). See also Yochai Benkler, *Coase’s Penguin, or, Linux and The Nature of the Firm*, 112 YALE L.J. 369, 444–47 (2002) (discussing the new phenomenon of commons-based peer production of information and its economic implications).

I. VIRTUAL WORLDS

What exactly are virtual worlds? They are sophisticated pieces of software that enable their users to project an identity into a generated three-dimensional reality through the use of advanced computer graphics and—through the eyes of this digital persona or avatar¹⁷—interact with other players and wander through this computer-generated reality.¹⁸

For example, a short overweight female teenager can become a tall twenty-something with a triathlete's body. She can decide if that lithe Olympian is a man or woman, or even of the same race as her own.¹⁹ When she enters a virtual world, she experiences a three-dimensional realm from the first-person perspective of her Olympian avatar. And she shares this experience with thousands of other simultaneous players, who are looking through the eyes of their own avatars and are both perceiving the teenager's created identity from their own point of view and sharing with her their own thoughts through customized gestures and words.

Inevitably, friendships emerge between geographically separate but intellectually proximate minds.²⁰ For them the virtual world is a place where they can congregate and share a conversation, or where they can aggregate into a group and tackle a major project, like building a virtual house, starting a virtual company, or organizing a rally to support a political candidate in the virtual world.

Subscriptions to virtual worlds are skyrocketing: recent estimates indicate that total worldwide subscriptions to the thirty-two major virtual worlds may be as high as 9.4 million people, following an exponential growth curve since the genre's beginnings in 1997.²¹ One Korean game, *Lineage*, may account for nearly 4.1 million of those subscribers, although

¹⁷ An avatar is a graphically-generated incarnation of the real-world individual inside of virtual space. See Avatar (virtual reality)—Wikipedia, the Free Encyclopedia, [http://en.wikipedia.org/wiki/Avatar_\(virtual_reality\)](http://en.wikipedia.org/wiki/Avatar_(virtual_reality)) (last visited Mar. 25, 2006).

¹⁸ For a summary of the rise of virtual worlds, see Beth Simone Noveck, *The State of Play*, 49 N.Y.L. SCH. L. REV. 1, 6–11 (2004).

¹⁹ Based on studies of cross-presenting characters, men sometimes present themselves as women, and most of the female-presenting characters are actually men. See, e.g., HOWARD RHEINGOLD, *THE VIRTUAL COMMUNITY—HOMESTEADING ON THE ELECTRONIC FRONTIER* 150–52 (2000); Pavel Curtis, *Mudding: Social Phenomena in Text-Based Virtual Realities*, Proceedings of the 1992 Conference on the Directions and Implications of Advanced Computing 7 (Mar. 3, 1992), http://pages.cpsc.ucalgary.ca/~saul/hci_educ_papers/curtis/curtis-mudding-diac-1992.pdf; see also Wagner James Au, *New World Notes* (Oct. 24, 2003), http://secondlife.com/notes/2003_10_20_archive.php#20031024 (noting an example of an African-American woman who presents as a Caucasian avatar).

²⁰ See RAY OLDENBURG, *THE GREAT GOOD PLACE: CAFÉS, COFFEE SHOPS, COMMUNITY CENTERS, BEAUTY PARLORS, GENERAL STORES, BARS, HANGOUTS AND HOW THEY GET YOU THROUGH THE DAY* 63 (1989) (“Third places are forms of affiliation, and friends come there in ‘sets.’ Among those who have given allegiance to a third place, the regulars usually happen to be friends.”).

²¹ See Bruce Sterling Woodcock, *An Analysis of MMOG Subscription Growth—Version 17.0*, at tbl. 5, <http://mmogchart.com/Subscriptions.xls> (last visited Sept. 11, 2005).

the numbers may include overlap, as some subscribers may be playing in both versions 1 and 2 of the world.²² Within North America and Europe, another eleven worlds account for nearly 4.9 million people²³:

<u>Virtual World</u>	<u>Subscriber Headcount</u>
<i>World of Warcraft</i>	2,000,000
<i>Final Fantasy XI</i>	650,000
<i>EverQuest</i>	454,000
<i>RuneScape</i>	379,000
<i>Ragnarok Online (JP)</i>	300,000
<i>EverQuest II</i>	278,000
<i>Star Wars Galaxies</i>	255,000
<i>Dark Age of Camelot</i>	175,000
<i>Ultima Online</i>	157,000
<i>City of Heroes</i>	140,481
<u><i>Toontown Online</i></u>	<u>100,000</u>
TOTAL	4,888,481

Studies by anthropologist Nick Yee indicate that these subscribers are spending an average of 22.71 hours per week in these worlds, with over 11% spending a full workweek (30–40 hours) developing their online characters, and 8–10% spending more than 40 hours per week (8.4% of males and 10.4% of females).²⁴ Assuming that these 9.4 million people are each “in-world” for about 22 hours per week, subscribers to virtual worlds could be devoting over 213 million hours per week to building their virtual lives.

This impressive success, however, did not develop overnight. Virtual worlds are almost as old as the first networked computers, first emerging as a genre on the early timesharing systems²⁵ of the late 1960s.²⁶ Initially, these early worlds were little more than multiplayer arcade games: users had to start afresh on each load of the game into a computer.²⁷ Because many of the builders of virtual worlds were fascinated with offline role-

²² Nick Yee, *The Daedalus Project: Hours of Play per Week*, <http://nickyee.com/daedalus/archives/000758.php> (last visited May 28, 2005).

²³ Woodcock, *supra* note 21, at sheet 5 (including *Lineage II*).

²⁴ Yee, *supra* note 22.

²⁵ The Jargon File describes timesharing as “the technique of scheduling a computer’s time so that they are shared across multiple tasks and multiple users, with each user having the illusion that his or her computation is going on continuously.” See Eric Raymond, *The Jargon File: timesharing*, <http://www.catb.org/jargon/html/T/timesharing.html> (last visited Mar. 26, 2006).

²⁶ See David R. Woolley, *PLATO: The Emergence of Online Community* (1994), <http://www.thinkofit.com/plato/dwplato.htm>.

²⁷ See Raph Koster, *Online World Timeline*, <http://www.raphkoster.com/gaming/multimeline.shtml> (last visited Mar. 27, 2006).

playing games—in which they could develop personae over months (and sometimes years) of game play and travel across complex lands of their own shared imagination²⁸—they began a process of modeling these offline worlds into programming code.²⁹ Although they were able to develop worlds that an individual player or team could save and resume, they were unable to create a world where the game continued even in one or more players' absence. It was not until 1978, when two undergraduates at the University of Essex, Roy Trubshaw and Richard Bartle, applied early database technology to the development of an adventure world called MUD1, that entire communities of users could both build on their successes in previous game sessions and interact in a persistent shared world.³⁰ MUD1 was an instant success. When Trubshaw and Bartle connected MUD1 to the nascent Internet in 1979, the first multiplayer Internet-based role-playing game spread so quickly (and consumed so much bandwidth and computing resources) that many network administrators had to regulate multi-user dimension ("MUD") activity.³¹

Despite the popularity of MUDs, participants in these early worlds had no power to shape their shared space. They could acquire objects and dispose of them, but they could not craft their own objects, nor could they shape the structure of the society that they were building. The power of malleability was a privilege granted only to the elite administrators of the game.

This situation soon changed. In 1988, a graduate student at Carnegie Mellon University, James Aspnes, decided to craft a MUD with no aim beyond social interaction, with the goal of being "up and running in a week of coding and last[ing] for a month before everybody got bored of it."³² To make it more attractive to users, he added a way to allow users to craft their own simple objects and add virtual rooms, with all building activity regulated by a simple monetary system. In so doing, Aspnes replaced one adventure with another: the original task of exploring a prefabricated virtual

²⁸ *See id.* In 1973, Dave Arneson and Gary Gygax released the first typewritten rules for how to create adventures for multiple characters, combining the use of chance with a reliance on the structured imagination of a game coordinator and referee known as a dungeon master. This meta-character served as the creator of the adventure as much as the arbiter of disputes.

²⁹ *See id.* Two notable examples were the games of Orthanc and ADVENT. *See id.*

³⁰ *See* Richard Bartle, Early MUD History (Nov. 15, 1990), <http://www.mud.co.uk/richard/mudhist.htm>.

³¹ *Id.* An urban legend once held that Australia banned MUDs across the continent. *See* RHEINGOLD, *supra* note 19, at 168–69. However, Elizabeth Reid dispelled this rumor, clarifying that the bans occurred across many university and commercial networks. *Are MUDs Banned in Australia?*, COMPUTER-MEDIATED COMM., Aug. 1, 1994, at 4, available at <http://www.ibiblio.org/cmc/mag/1994/aug/muds.html>.

³² *See* Lauren P. Burka, *A Hypertext History of Multi-User Dimensions*, THE MUDDDEX, 1993, <http://www.linnaean.org/~lpb/muddex/essay>.

world to earn points and power was replaced by an open-ended quest to build both social relationships and the world's infrastructure.³³

In 1990, Pavel Curtis at the famed Xerox Palo Alto Research Center (PARC)³⁴ took Aspnes' basic idea and fused it with MUD code by Stephen White that used a fundamentally different and far more scalable programming method called object orientation.³⁵ Curtis named the resulting creation LambdaMOO, for Lambda MUD Object Oriented.³⁶ Every player who earned Curtis's trust was granted the power to create their own objects and extend the virtual space. Instead of wandering through a maze of the game designer's imagination, they were crafting it themselves. As players learned how to create objects in the MOO programming language,³⁷ thousands of new places and objects emerged, and the virtual world expanded to include thousands of users, with hundreds logged on simultaneously.³⁸

Although these virtual worlds expanded to include as many as 30,000 users, they never hit the mainstream.³⁹ For all the power they gave to the users to shape their own experiences, their text-based realities left a great deal to the imagination. They were models, and they were proxies, but they were not true simulacra. However, these worlds had laid the foundation for future designs: they showed that the power of virtual worlds derives directly from their success as simulacra of familiar realities and from their concomitant success at solving four fundamental problems:

- (1) Persistence: Enabling participants to return to a shared virtual space after an arbitrary time offline and shape their online activities into long-term projects. Importantly, persistence also enables the world to evolve in the absence of its participants. For example,

³³ RHEINGOLD, *supra* note 19, at 162–63.

³⁴ Xerox's Palo Alto Research Center (PARC) was the research division of the Xerox Corporation, widely known for the invention of the graphic user interface and many other computing innovations. For a history of PARC, see MICHAEL A. HILTZIK, *DEALERS OF LIGHTNING: XEROX PARC AND THE DAWN OF THE COMPUTER AGE* (2000).

³⁵ See also Pavel Curtis, *The Incredible Tale of LambdaMOO*, G4, June 19, 2002, at 1, http://www.g4tv.com/techtv/vault/features/38666/The_Incredible_Tale_of_LambdaMOO.html. Object-oriented programming organizes code into atomic units which have both attributes (nouns) and behaviors (verbs). These units, or *objects*, may act on each other in a manner analogous to the way people and objects act in the real world. See Object-oriented Programming—Wikipedia, the Free Encyclopedia, http://en.wikipedia.org/wiki/Object_orientation (last visited Mar. 26, 2006).

³⁶ See Pavel Curtis, *Not Just a Game: How LambdaMOO Came to Exist and What it Did to Get Back at Me*, in *HIGH WIRED: ON THE DESIGN, USE, AND THEORY OF EDUCATIONAL MOOS* 25–44 (Cynthia Haynes & Jan Rune Holmevik eds., 1998).

³⁷ *Id.*

³⁸ See Curtis, *supra* note 35, at 4.

³⁹ Pavel Curtis estimates the number of MUD players at 20,000 in 1992. See Curtis, *supra* note 19, at 17.

buildings constantly age and require maintenance, and life in the virtual world continues even if a participant is offline.⁴⁰

- (2) Teleology: Orienting the lives of avatars around some telos or end, usually either the pursuit and completion of concrete tasks or the user-driven construction of a society that models the real world or an established fantasy realm (such as Star Wars).⁴¹
- (3) Malleability: Giving participants the ability to modify the world, usually by granting them rights to add objects from a supplied set of raw materials. Malleability delegates some of the responsibility for creating both content and the overall narrative to the users, allowing the world designer to focus on building ever better simula-cra (as opposed to getting caught in the operations of the virtual world).⁴²
- (4) Verisimilitude: Creating an immersive experience sufficiently resembling reality as to enable users to “see” themselves inside the virtual world. The design of a mass-market virtual world must create a simulacrum of familiar patterns and metaphors so as to make quick acclimation possible for its users, whether the sources of that familiarity are from the real world or have their roots in myth.⁴³

The first software that moved beyond the confines of text-based virtual worlds and made a full-fledged attempt at meeting all four of these criteria dates from 1983, when Chip Morningstar and F. Randall Farmer started working on making virtual worlds commercially viable and using the emerging craze in personal computers to enable graphical rendering of what had previously been text-only worlds. By 1985, these two programmers had built a prototype called *Habitat* using a popular, inexpensive platform, the Commodore 64 and the 300-baud modems of the day.⁴⁴ However, their success was limited by the extremely narrow bandwidth and low processing power of graphics chips and CPUs, as well as their per minute pricing model.⁴⁵

⁴⁰ For a description of a faucet/drain economy, which presupposes a persistent world, see RICHARD A. BARTLE, PITFALLS OF VIRTUAL PROPERTY 19 (2004), available at [http://www.themis-group.com/uploads/Pitfalls of Virtual Property.pdf](http://www.themis-group.com/uploads/Pitfalls%20of%20Virtual%20Property.pdf).

⁴¹ RHEINGOLD, *supra* note 19, at 149–80.

⁴² *Id.* at 158.

⁴³ Cf. SHERRY TURKLE, LIFE ON THE SCREEN: IDENTITY IN THE AGE OF THE INTERNET 186 (1997) (“In face-to-face role-playing games, one steps in and out of a character. MUDs, in contrast, offer a character or characters that may become parallel identities.”).

⁴⁴ Chip Morningstar & F. Randall Farmer, *The Lessons of Lucasfilm's Habitat*, in FIRST STEPS 273, 274–76, 279 (Michael Benedikt ed., 1991).

⁴⁵ See Koster, *supra* note 27 (quoting Jessica Mulligan: “Until Meridian 59 launched in 1996 and UO launched in September 1997 with flat monthly rates, billing for commercial MMOGs was mainly on

By 1996, two virtual world providers had completely changed the landscape of virtual worlds by switching from the earlier proprietary dial-up service in order to harness the publicly accessible commercial Internet to connect participants to their worlds. The first and smaller company, Archetype Interactive, released *Meridian 59*, which offered impressive immersive graphics, but is principally remembered for changing the pricing model from a usage-based fee to a monthly flat fee.⁴⁶ Origin Systems' *Ultima Online*, the more successful of the two, eclipsed *Meridian 59* by harnessing the user base of its popular single-player product, eventually building a base of 240,000 subscribers by April 2001.⁴⁷

But *Ultima*'s success pales in comparison to a Korean game called *Lineage*, which capitalized on the highly computer-literate, wired, and demographically dense populace of Korea. *Lineage* not only offered a three-dimensional world, but also modeled the in-game political order on the clan structures of the world's native Korea.⁴⁸ Seventeen months after *Lineage* launched in August 1998, it had enrolled one million users.⁴⁹ Shortly after *Lineage*, Sony and Microsoft each brought their own products into the marketplace. Sony Online's *EverQuest*, Microsoft's *Asheron's Call*, and games such as *Final Fantasy IX* all subscribed more than 100,000 users, with *EverQuest* and *Final Fantasy* each hitting 500,000 by the end of 2004.⁵⁰

For all of their success, the commercially successful offerings in this generation of graphical, commercial virtual worlds shared one significant limitation: like early text-based virtual spaces, all participants remained in the designer's world, without a means to craft their own objects or augment their experiences. In this sense, they had not advanced to become three-dimensional analogues to the text-based LambdaMOO.⁵¹ A San Francisco-based company would soon address this shortcoming.

a per minute/hourly basis (with a brief period of free access to AOL's games from December 1996 to about July 1997). Thus, the number of total subscribers was less important than how long you kept your hard-core players (the top 10% in game.").

⁴⁶ See Steven L. Kent, *Alternate Reality: The History of Massively Multiplayer Online Games*, GAMESPY.COM, Sept. 23, 2003, at 2, <http://archive.gamespy.com/amdmmog/week1/>.

⁴⁷ See Woodcock, *supra* note 21, at sheet 2.

⁴⁸ See J.C. Herz, *The Bandwidth Capital of the World*, WIRED, August 2002, at 90, 96–97, available at <http://www.wired.com/wired/archive/10.08/korea.html>.

⁴⁹ Woodcock, *supra* note 21, at tbl. 2; see also Kent, *supra* note 46, at 3.

⁵⁰ Woodcock, *supra* note 21, at tbl. 2.

⁵¹ Active World's *AlphaWorld* virtual world platform was a small but notable exception. Launched in 1995, *AlphaWorld* attempted to do for 3D virtual worlds what web browsers did for the 2D Web: it created a tool for exploring and building three-dimensional spaces. The programmers at Active Worlds created a library of objects that users could assemble like Lego blocks into buildings, cars, and other composite structures. By 1998, they had released a software development kit that enabled users to build their own custom objects, called blocks. See The Active Worlds SDK, <http://www.activeworlds.com/sdk> (last visited May 26, 2006), and particularly the timeline of changes to the SDK, at What's New in the Active Worlds SDK, <http://www.activeworlds.com/sdk/whatsnew.htm> (last visited May 26, 2006). With these tools, *AlphaWorld* users have not only replicated Rome's Coliseum, but have created entire parallel worlds. For all this construction and creativity, Active Worlds has never been a commercial

When Linden Lab released *Second Life* in 2003, it had crafted a simulacrum of the architecture of modern societies, complete with contemporary clothing, buildings, vehicles, and opportunities for starting online businesses.⁵² *Second Life* accurately simulates the laws of physics in virtual space: flags move in the wind, objects fall to the floor if a character drops them. Linden Lab also gave its users a scripting language and an integrated development environment for building new objects. Users could assemble prefabricated shapes into composite objects and give those objects behaviors.⁵³ By combining verisimilitude with the power of malleability, users gained the freedom to craft ingenious objects, and they put that ability to use. According to Linden Lab's Cory Ondrejka, users have inserted over 100 million such objects into the world.⁵⁴ Over 380,000 distinct objects changed hands in the month of July 2006 in ten million user-to-user transactions, which (given the exchange rate of 300 Linden Dollars (L \$) to one U.S. dollar) yielded an internal economy of US \$10 million for that month.⁵⁵

Given the apparent utility of these virtual objects to millions of players, one can easily imagine that real money would start spilling over into these virtual worlds via markets for special objects, homes in good neighborhoods, and even virtual currency. Conversely, successful avatars could exchange virtual money for real money through traditional online markets, making it possible for users to earn a living through virtual world activities.⁵⁶

success: it only instituted a monthly-fee model in September 1997, and to date has only registered a total of 70,000 users, see The Activeworlds Corporation: Company Information, <http://www.activeworlds.com/info/index.asp> (last visited Sept. 14, 2005), partially because the world has no teleology. See Raph Koster, MUDs Versus MMORPGs, <http://www.legendmud.org/raph/gaming/mudsvsmassive.html> (last visited Sept. 14, 2005). That said, *AlphaWorld* set the stage for a new generation of virtual worlds, like Linden Lab's *Second Life*, that not only offer malleability to their users, but also economic freedom to sell their creations in both virtual markets and real-world exchanges.

⁵² See Matthew Yi, *Online Game Bets on Self-Expression: Linden Lab's Second Life Premieres Today*, S.F. CHRON., June 23, 2003, at E1; Stephen Totilo, *Do-It-Yourselfers Buy Into This Virtual World*, N.Y. TIMES, Nov. 11, 2004, at G5; Mure Dickie & Richard Waters, *Make-Believe Makes Money: Computer Games Companies Are Creating Vast Imaginary Worlds Online*, FIN. TIMES, Nov. 30, 2004, at 13.

⁵³ All objects in *Second Life* are composed of one or more geometric building blocks called "primitives," or (more colloquially) "prims." Each prim can be sized, shaped, colored and textured. Additionally, through the use of the Linden Scripting Language, programmers can insert event-based actions into a prim, so that it can interact with avatars or with other prims inside of an object. For example, by coding an "onTouch" function, a developer could make a "button" prim in a phone respond to the touch of an avatar, enabling someone to retrieve voicemails from a "voicemail" prim. For an introduction to this C/Java-like scripting language, see the Linden Scripting Language Wiki, <http://secondlife.com/badgeo/wakka.php?wakka=prim> (last visited June 5, 2005).

⁵⁴ Email from Cory Ondrejka, Chief Technology Officer, Linden Lab, to Viktor Mayer-Schönberger (Aug. 17, 2006, 19:16:50 PDT) (on file with author).

⁵⁵ *Id.* Linden Dollars can be freely exchanged to U.S. dollars through Linden Lab's LindeX Currency Exchange.

⁵⁶ See F. Gregory Lastowka & Dan Hunter, *The Laws of the Virtual Worlds*, 92 CAL. L. REV. 1, 4 (2004); Cory Ondrejka, *Escaping the Gilded Cage: User Created Content and Building the Metaverse*,

This is exactly what has happened. By the end of 2001, obeying laws of supply and demand, participants in Sony Online Entertainment's virtual world *EverQuest* began selling their virtual currency and virtual weapons to other users utilizing online marketplaces like eBay and Yahoo.⁵⁷ Intrigued by this development, Edward Castronova performed a detailed analysis of the trading of avatars and virtual objects (including currency) in *EverQuest* on both the microeconomic and macroeconomic levels.⁵⁸ He estimated that an avatar auctioned on eBay fetched between \$500 and \$1000 on average, and that on a typical day around \$13,000 in transactions of virtual goods took place on eBay.⁵⁹ By his estimate, *EverQuest* virtual currency had an exchange value of a little higher than a penny (US \$0.01072), giving the *EverQuest* world of Norrath a GNP of \$135 million.⁶⁰ Using the World Bank's GNP per capita data, that would place Norrath at seventy-seventh in the list of world economies, approximately equal to Russia.⁶¹ Moreover, trading was on the rise: Castronova's survey indicated that 45% of *EverQuest* users knew someone who had traded virtual objects for U.S. dollars.⁶²

In a move that infuriated those involved, Sony tried to stop spillover between *EverQuest* and the real world, citing not only the potential for cheating its in-world⁶³ systems, but also the numerous requests for Sony to become an arbitrator between parties in auctions that had ended in disputes.⁶⁴ To stop spillover, Sony worked with marketplace providers like eBay to cease the sale of virtual items being sold outside of *EverQuest*'s

49 N.Y.L. SCH. L. REV. 81, 93–94 (2004); Daniel C. Miller, Note, *Determining Ownership in Virtual Worlds: Copyright and License Agreements*, 22 REV. LITIG. 435, 437 (2003); Edward Castronova, *Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier* 37–39 (CESifo, Working Paper No. 618, 2001), available at <http://papers.ssrn.com/abstract=294828>. See also Tamara Lush, *Where Real Money Can Buy Unreal Fun*, ST. PETERSBURG TIMES (Fla.), Mar. 14, 2005, at 1A.

⁵⁷ See Daniel Terdiman, *Virtual Trader Barely Misses Goal*, WIRED NEWS, Apr. 16, 2004, <http://wired-vig.wired.com/news/games/0,2101,63083,00.html> (reporting that by buying and selling gold pieces, suits of armor and other artifacts from *Ultima Online*, a player managed to make a profit of \$3917 in one month, which equals an annualized rate of about \$47,000 in income); Lush, *supra* note 56.

⁵⁸ See Castronova, *supra* note 56, at pt. III.

⁵⁹ See *id.* at 31–32 (“[R]ecords at one web site show that on an ordinary weekday (Thursday, September 6, 2001), the total volume of successfully completed auctions (N = 112) was about \$9,200. A further \$3,700 in currency transactions (N = 32) were conducted.”).

⁶⁰ See *id.* at 33.

⁶¹ *Id.*

⁶² See *id.* at 29–36.

⁶³ For the purposes of this essay, the term “in-world” functions as an adjective to describe the location of an object or activity as being inside a virtual world.

⁶⁴ See, e.g., Greg Sandoval, *Sony to Ban Sale of Online Characters from its Popular Gaming Sites*, CNET NEWS.COM, Apr. 10, 2000, <http://news.com.com/2100-1017-239052.html?legacy=cnet>; Daniel Terdiman, *When Play Money Becomes Real*, WIRED NEWS, Apr. 7, 2004, <http://www.wired.com/news/games/0,2101,62929,00.html>.

own trading mechanisms.⁶⁵ However, market demand eventually proved stronger than Sony's desires to protect the nature of the game: in July 2005, Sony released its own sanctioned avatar-to-avatar market for in-world objects, allowing users to purchase virtual currency and property with real-world money.⁶⁶

EverQuest is hardly alone in having to manage out-of-world sales of in-world objects. According to Richard Bartle, monthly eBay sales of virtual items for *Ultima Online* exceeded \$156,857 in April 2004.⁶⁷ *Second Life* also has a means of facilitating such transactions; it offers a currency exchange called the LindeX, which allows users to convert Linden Dollars both to and from U.S. dollars.⁶⁸ Given both the volume of money being traded and the number of transactions in these auctions, it is no surprise that entrepreneurs have taken notice.⁶⁹ Companies in countries with cheap labor, like China, have begun teaching computer-literate workers to build new avatars, earn virtual money, and engage in specific projects to acquire rare and high-priced treasures, all of which then are sold on auction sites.⁷⁰ One such site, itemBay, has grown around the huge gaming community in Korea. By some estimates, its revenues are in excess of \$17 million *per month* in the trade of virtual objects.⁷¹

With this rising economic power, virtual world providers are facing a new set of governance issues that arise when money—whether virtual or real—changes hands. They are not having an easy time of it. Worried about the vulnerability of their worlds, virtual world providers have tried to limit spillover. But permeability continues. As virtual world providers are discovering, informational goods are easy to share but hard to control, especially when the Internet enables a suitable infrastructure for markets of virtual goods to develop.⁷²

⁶⁵ See Sandoval, *supra* note 64; see also Matt Hinds, *Sony Online Entertainment Opening Game-Item Auction Site*, CNET GAMESPOT, Apr. 20, 2005, <http://www.gamespot.com/pc/rpg/everquest2/news.html?sid=6122592>.

⁶⁶ In the first thirty days of operation, the auctions attracted over 45,000 avatars who exchanged over US \$180,000 in virtual property. See Press Release, Sony Online Entertainment, *Station Exchange—The First 30 Days* (Aug. 25, 2005), http://sonyonline.com/corp/press_releases/082605_StationExchange_first30days.html.

⁶⁷ BARTLE, *supra* note 40, at 2.

⁶⁸ See *Second Life's* LindeX, <https://secondlife.com/currency/market.php> (last visited Mar. 27, 2006) (login required). On March 27, 2006, the daily volume was approximately US \$20,194 (L \$5,916,748 at L \$293 per U.S. dollar).

⁶⁹ See Mark Wallace, *Game is Virtual. Profit is Real*, INT'L HERALD TRIB., May 30, 2005, at 9.

⁷⁰ See Laila Weir, *Boring Game? Outsource It*, WIRED NEWS, Aug. 24, 2004, <http://www.wired.com/news/digiwood/0,1412,64638,00.html>. See also IGE's eBay Store, <http://stores.ebay.com/IGE> (last visited June 2, 2005).

⁷¹ See Mark Russell, *Gaming the Online Games*, NEWSWEEK INT'L, Oct. 18, 2004, at E32, available at <http://www.msnbc.msn.com/id/6199780/site/newsweek>.

⁷² For a monetary analysis of what he terms "eBaying" virtual goods, see Hiroshi Yamaguchi, *An Analysis of Virtual Currencies in Online Games* (Apr. 30, 2004), <http://ssrn.com/abstract=544422>.

II. GOVERNING VIRTUAL WORLDS

Because conflicts would arise in virtual worlds even if their interfaces to the real world were impermeable, spillover represents only a small part of the governance challenge virtual world providers face. Traditional problems of human nature and conflict persist. Participants in virtual worlds may misunderstand each other. Others may intentionally lie, deceive, or cheat.

Conflicts in a virtual world may arise when two participants have agreed on a contract, and one of them fails to perform. For example, in *Second Life*, participants may buy objects from merchants, like the virtual clothes with which they dress their avatars. These merchants are designers of an informational good—a stream of bits that, when rendered through a graphics engine, instantiates a beautiful dress in the virtual world. Buyers contract with these merchants and pay them Linden Dollars (the virtual currency). If a merchant agrees to sell a virtual dress and collects the money, but then fails to deliver the informational good—that is, fails to transfer control over the virtual dress to the buyer—the merchant may be in breach of contract and soon embroiled in a conflict with the transaction partner. In virtual worlds that permit their participants to freely trade in virtual objects, commercial transactions between participants are commonplace and, unfortunately, so are conflicts arising from contractual obligations.⁷³

In addition, legal issues from other areas of the law remain. First, when a virtual world like *Second Life* combines the right of its participants to freely trade virtual objects with the right to retain intellectual property (“IP”) rights over those same virtual objects, these real-world rights can be violated by other participants who copy, use, or disseminate this IP without permission. Participants may also violate other rights protected by statute, like trademark or patent laws. Second, conflicts may arise between individuals over aspects of communication, because, as Jack Balkin has explained, most if not all activity in virtual worlds begins “as a form of speech.”⁷⁴ Through their online actions and speech, participants may commit “some form of communications tort,”⁷⁵ like defamation, fraud or misrepresentation, each of which can lead to serious conflicts with other participants in virtual worlds. Finally, in addition to conflicts between participants—*ex contractu* or *ex delicto*—conflicts can arise between the society itself and an individual, when participants in virtual worlds violate what we call criminal statutes in the real world—i.e., the societal rules of ac-

⁷³ See Daniel Terdiman, *Online Feuds a Big Headache*, WIRED NEWS, Nov. 3, 2004, <http://www.wired.com/news/culture/games/0,65562-0.html>.

⁷⁴ Jack M. Balkin, *Law and Liberty in Virtual Worlds*, 49 N.Y.L. SCH. L. REV. 63, 73 (2004).

⁷⁵ *Id.*

cepted and prohibited behavior.⁷⁶ For example, a participant, by manipulating the code, could hijack another participant's avatar and keep the avatar locked up for a ransom.

Dealing with each of these types of conflict requires a functioning virtual world governance system that addresses these conflicts in two ways. First, *ex post*, societal conflict resolution structures, institutions, and processes are necessary to settle conflicts authoritatively.⁷⁷ Second, *ex ante*, by setting general rules, such structures, institutions and processes provide guidelines for behavior and create predictable outcomes to conflicts, such that if one adheres to these rules, one will likely have any conflict settled in one's favor.⁷⁸ Each conflict resolved as expected further strengthens this predictability.⁷⁹

At the level of implementation, virtual world providers possess both building blocks of a functioning governance system—rule setting and rule enforcement. By changing the software code, providers can set rules and thereby constrain behavior in their worlds. For example, to keep participants in a virtual world from moving instantaneously from one part of the world to another (a feature often called “teleporting”), providers only have to modify the software that implements teleporting. Unlike the real world, virtual worlds are creations of the mind that are modeled in software and, as such, are completely changeable.⁸⁰ In this respect, code *is* law in virtual worlds, arguably making them the most “Lessigian” of all spaces of online interaction.⁸¹

But contrary to some of the more enthusiastic proponents of the “code is law” movement, who emphasize the normative role of software code, software code is not able to regulate all online behavior. First, software is not sufficiently advanced to grasp the semantic meaning of text.⁸² For ex-

⁷⁶ Whether or not the creation of such societal rules requires us to accept the concept of “virtual property,” as Lastowka and Hunter have argued, remains an open question. See Lastowka & Hunter, *supra* note 56, at pt. II (developing and discussing the concept of “virtual property”).

⁷⁷ See LAWRENCE M. FRIEDMAN, *AMERICAN LAW* 23–24 (2d ed. 1998) (suggesting that dispute settlement is a function of the legal system); ALEC STONE-SWEET, *GOVERNING WITH JUDGES* 12 (2000) (“Rule systems perform a crucial social function not yet discussed: they facilitate the peaceful resolution of disputes.”).

⁷⁸ See STONE-SWEET, *supra* note 77, at 12 (“[T]he existence of a norm may prevent conflicts from arising in the first place.”).

⁷⁹ See *id.* at 3.

⁸⁰ WILHELM STEINMÜLLER, *RISKANTE NETZE* 31 (1990).

⁸¹ See LESSIG, *supra* note 12.

⁸² See HUBERT L. DREYFUS, *WHAT COMPUTERS STILL CAN'T DO: A CRITIQUE OF ARTIFICIAL REASON* 149 (1992). This problem is well known in the context of filtering illegal content on the Internet. For instance, the *Censorware Project* reports that the software filter *Cyber Patrol* also blocks access to sites like the MIT Project on Mathematics and Computation, the University of Arizona, the U.S. Army Corps of Engineers Construction Engineering Research Laboratories, and AAA Wholesale Nutrition, a provider of bodybuilding products. See The Censorware Project, *Blacklisted by Cyber Patrol: From Ada to Yoyo* (Dec. 25, 1997), <http://censorware.net/reports/cyberpatrol/ada-yoyo.html>; see also

ample, veiled threats made by one participant of a virtual world to another may not be recognized by the virtual world's software and may not trigger the software code that filters the message. Second, not every human conflict can be avoided through *ex ante* regulation of behavior. Conflicts are bound to arise even in the most restricted virtual worlds. Third, participants demand a certain degree of freedom to interact.⁸³ If behavior is constrained too narrowly, it will act as a disincentive for people to join and stay in the virtual world.

Because software code can only limit and not eliminate conflict, virtual world providers must apply more old-fashioned governance mechanisms to deal with conflicts that cannot be constrained through modifications to the underlying code: codifying social norms into written rules and providing effective enforcement of these rules. Enactment of such a means of governance is relatively straightforward. When participants in virtual worlds enter into a contract with providers to register for the service—usually through an end user license agreement (“EULA”) or the terms of service⁸⁴—they agree to be bound by the rules and regulations in that contract. Providers thus have a mechanism to set the rules they deem necessary.

These mechanisms for rule enactment are complemented by mechanisms of rule enforcement. Participants who violate the rules can be expelled from the virtual world—harkening back to the practice of ostracism from ancient and medieval cities.⁸⁵ Such forced exit works through a combination of legal and technical means. Because breaking a rule is a violation of a participant's contract, it permits the virtual world provider to punish participants that break the rules, even by canceling the contract with them if necessary.⁸⁶ Because access to virtual worlds is restricted by means

Tim Berners-Lee, *Semantic Web Road Map* (Sept. 1998), <http://www.w3.org/DesignIssues/Semantic.html> (proposing to create a universal medium for information exchange by giving meaning, in a manner understandable by machines). See generally Richard J. Peltz, *Use “The Filter You Were Born With”: The Constitutionality of Mandatory Internet Filtering for the Adult Patrons of Public Libraries*, 77 WASH. L. REV. 397, 401–16 (2002); R. Polk Wagner, *Filters and the First Amendment*, 83 MINN. L. REV. 755, 760–62 (1999); Jonathan Weinberg, *Rating the Net*, 19 HASTINGS COMM. & ENT. L.J. 453 (1997); Electronic Privacy Information Center, *Faulty Filters: How Content Filters Block Access to Kid-Friendly Information on the Internet* (Dec. 1997), <http://www2.epic.org/reports/filter-report.html>.

⁸³ See Raph Koster, *The Man Behind the Curtain* (May 11, 1998), <http://www.legendmud.org/raph/gaming/essay5.html>.

⁸⁴ For the debate on EULAs, see Miller, *supra* note 56. See generally Robert W. Gomulkiewicz & Mary L. Williamson, *A Brief Defense of Mass Market Software License Agreements*, 22 RUTGERS COMPUTER & TECH. L.J. 335 (1996) (giving an overview of the various forms of EULAs and discussing their advantages as well as options for improvement); Mark A. Lemley, *Intellectual Property and Shrinkwrap Licenses*, 68 S. CAL. L. REV. 1239, 1240 (1995); Charles R. McManis, *The Privatization (or “Shrink-Wrapping”) of American Copyright Law*, 87 CAL. L. REV. 173, 173 (1999).

⁸⁵ See Johnson & Post, *supra* note 10, at 1388–90. See also Paul R. Milgrom, Douglass C. North & Barry R. Weingast, *The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs*, 2 ECON. & POL. 1, 5 (1990).

⁸⁶ For example, the *Second Life* Terms of Service state, “Any violation by you of the terms of the foregoing sentence may result in immediate and permanent suspension or cancellation of your Account.”

of username and password, providers can use a technical measure—software code—to invalidate that participant's access privileges and thereby enforce the legal consequences stemming from the breach of contract.

Expulsion as an enforcement mechanism is effective because participants in virtual worlds incur significant social and financial costs when they are forced to leave. They not only have to leave behind a network of friends and their accumulation of social and other capital, but also are forced to abandon the persistent narrative that they have constructed around their avatar. There are additional financial costs: the required use of credit cards for payment of the virtual world's monthly fees ensures that individual participants are linked to specific credit cards (and thus, by approximation, people), making it difficult for individuals to re-register for a virtual world from which they have been banished. While it is not impossible to sign up again with a different credit card,⁸⁷ it would still be a costly choice, as one would still have lost everything connected with the previous avatar.⁸⁸ Moreover, forced exit is an efficient mechanism of enforcement, because it is cheaper for providers to banish a user than for participants to lose access to their virtual world.⁸⁹

The mechanisms for rule enactment (either through software or through an extension of the contract with the users) and rule enforcement (either directly through behavior restricting code or indirectly through provider action facilitated by technical means to restrict access) provide the necessary foundation for governance in virtual worlds to function. These means, however, do not necessarily incorporate the procedural and other qualities that we are accustomed to seeing in the real-world rulemaking and enforcement space.

You agree that Linden may take whatever steps it deems necessary to abridge, or prevent behavior of any sort on the Service in its sole discretion, without notice to you." Second Life Terms of Service § 5.1, <http://secondlife.com/corporate/tos.php> (last visited Mar. 27, 2006). Sony Online Entertainment's Terms of Service are similar:

Without limiting the foregoing, SOE shall have the right to terminate this Agreement with you, effective immediately, and/or terminate or temporarily suspend your access to all or any part of The Station, without notice, in the event of any conduct by you which SOE, in its sole discretion, considers to be unacceptable, or for conduct that SOE believes is a violation of the terms and conditions contained herein or any policies or guidelines posted by SOE on The Station, or for other conduct which SOE believes, in its sole discretion, is harmful to SOE, other Station Members or other users of The Station. SOE reserves the right to deny registration of any individual as a Station Member and to deny access to The Station to any individual.

Sony Online Entertainment Terms of Service § 10, <http://sonyonline.com/tos/tos.jsp> (last visited Mar. 27, 2006).

⁸⁷ For example, Mr. Bungle, the evil protagonist of Julian Dibbell's famous account, "A Rape in Cyberspace," rejoined the community as Dr. Jest after being "toaded"—that is, officially deleted from the servers. See JULIAN DIBBELL, *MY TINY LIFE* 26 (1999).

⁸⁸ This practice could become difficult over time if virtual world providers work together with credit card companies.

⁸⁹ Mayer-Schönberger, *The Shape of Governance*, *supra* note 3, at 624–25.

A. *Qualities of Rulemaking*

In the real world, rulemaking is highly formalized. In most democracies, a specialized institution—a legislature—deliberates and enacts laws according to a precisely defined process;⁹⁰ these laws are then published so that citizens know what rules to obey. In contrast, rulemaking in virtual worlds is private rulemaking. In this sense, virtual worlds are like huge “virtual malls” in which the owners retain significant rights.⁹¹ Rulemaking is done by the virtual world provider, with no guarantee of democratic participation or assurance of transparency. The providers may change the underlying software code—and by extension the rules that constrain certain behaviors—at any time.⁹² Without warning, users may suddenly find themselves in a changed environment in which some behavior or activity may not only be simply restricted, but impossible to do.⁹³ In cases where rulemaking cannot be directly embedded in software code, virtual world providers may change the terms and conditions of participation, thereby curbing behavior of users through the threat of potential expulsion or similar access restrictions.⁹⁴

We do not suggest that rulemaking in virtual worlds is necessarily undemocratic and opaque, or that virtual world providers have no desire to recreate democratic institutions and processes from the real world. In fact, there are numerous examples of (mostly failed) attempts by virtual world providers to introduce at least a modicum of democratic control and transparency. Take the case of LambdaMOO, a virtual world in which the administrators attempted to institute direct democracy.⁹⁵ When LambdaMOO

⁹⁰ TOM R. TYLER, *WHY PEOPLE OBEY THE LAW* 108 (2006) (showing that people are much more willing to obey rules if they perceive procedural fairness).

⁹¹ See Jonathan Zittrain, *ICANN: Between the Public and the Private: Comments Before Congress*, 14 BERKELEY TECH. L.J. 1071, 1074–77 (1999) (pointing out the blurring of the public-private distinction on the Internet). On private ordering, see generally, for example, ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 123–36 (1991); Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115 (1992) (examining the system of private governance in the diamond industry). *But see* Margaret Jane Radin & R. Polk Wagner, *The Myth of Private Ordering: Rediscovering Legal Realism in Cyberspace*, 73 CHI.-KENT L. REV. 1295, 1297 (1998).

⁹² See, e.g., Second Life Terms of Service, *supra* note 86 (“Changes. Linden has the right at any time for any reason or no reason to change and/or eliminate any aspect(s) of the Service as it sees fit in its sole discretion.”); Sony Online Entertainment Terms of Service, *supra* note 86 (“You understand that online games, and system specifications necessary to play those games, may continuously evolve over time. Accordingly, SOE reserves the right to modify and/or increase the system specifications necessary to play any online game—whether free or subscription based—at any time and without notice.”).

⁹³ See, e.g., Second Life Terms of Service, *supra* note 86.

⁹⁴ See, e.g., Daniel Terdiman, *Gamers Eye Open Virtual Worlds*, WIRED NEWS, Apr. 12, 2002, <http://www.wired.com/news/culture/0,65865-0.html> (reporting on the expulsion of high-profile player Peter Ludlow from *The Sims Online*).

⁹⁵ See Curtis, *supra* note 35, at 5; Pavel Curtis, *LambdaMOO Programmer’s Manual*, <http://www.ipomoea.org/moo/pm1.8.1/index.html> (last visited Mar. 26, 2006). For MediaMOO, see Amy Bruckman & Carlos Jensen, *The Mystery of the Death of MediaMOO: Seven Years of Evolution of*

started in 1990, the only method of social control was through a small group of administrators who ruled as benevolent dictators, the wizards.⁹⁶ A wizard had the ultimate powers in the system: the ability to expel users by deleting them from the database (called “toading”).⁹⁷ Wizards wielded these powers in the adjudication of social conflicts, usually showing restraint, but occasionally ostracizing certain problematic users from the world.⁹⁸

After its launch, LambdaMOO grew quickly: within a year, it had attracted several thousand residents.⁹⁹ Given this growth, the handful of wizards found it difficult to keep up with the social conflicts while simultaneously managing the world's technical operations.¹⁰⁰ Although they took the time to encode the tacit rules that had governed user behavior into a canonical statement of manners and had even recruited trusted players into an arbitration committee to lighten the load of dispute resolution, the wizards were incapable of managing the stress. As LambdaMOO creator Pavel Curtis later related, “[s]omething had to give, and it was us. On December 9, 1992, I posted a pivotal message to LambdaMOO's [Social-Issues mailing list I announced the abdication of the wizards from the ‘discipline/manners/arbitration business;’ we would no longer be making what I glibly termed ‘social decisions.’”¹⁰¹

When Curtis abdicated the authority of the wizards over the adjudication of social conflicts in LambdaMOO, he was hoping to force the community to devise a system of self-governance on its own. Although Curtis enabled the residents to institute a ballot initiative system modeled on that found in California, and though they were able to use the conferencing tools of the software to deliberate about critical issues, they failed to institute a system of governance that could enforce any of their decisions. In particular, they lacked the wizard's power of mandating forced exit of problematic users. The consequences were predictable: “LambdaMOO slowly became a rougher place It's hard to say how much [the announcement of the

an Online Community, in BUILDING VIRTUAL COMMUNITIES 21 (K. Ann Renninger & Wesley Shumar eds., 2002) [hereinafter Bruckman & Jensen, *Mystery*]; Amy Bruckman, “Democracy” in Cyberspace: Lessons from a Failed Political Experiment, Remarks at Conference at MIT: Virtue & Virtuality (Apr. 20, 1996), http://www.fragment.nl/mirror/various/Bruckman_A.1996.Democracy_in_cyberspace.html [hereinafter Bruckman, *Democracy*].

⁹⁶ See Bruckman, *Democracy*, *supra* note 95; Curtis, *supra* note 35, at 4.

⁹⁷ See Bruckman, *Democracy*, *supra* note 95.

⁹⁸ See DIBBELL, *supra* note 87, at 24–25 (describing how TomTraceback, a wizard in LambdaMOO, took action and deleted Mr. Bungle from the database).

⁹⁹ See Curtis, *supra* note 19, at 4; see also Jack Ryan, A Uses and Gratifications Study of the Internet Social Interaction Site LambdaMOO: Talking with “Dinos” (Dec. 1995) (unpublished Master's Thesis, Ball State University), <http://www.zacha.net/articles/ryan.html>.

¹⁰⁰ This fate was shared by the investors of *Habitat* as well as other fast-growing virtual communities. See Morningstar & Farmer, *supra* note 44, at 289–90 (describing the difficulties game designers have in deciding whether and to what extent gunplay and thievery should be allowed).

¹⁰¹ Curtis, *supra* note 35, at 4.

wizard's abdication] accelerated a process that was already in place, but surely it didn't help to hold it back. The level of inter-player strife and harassment rose and rose, slowly but inexorably."¹⁰² Without the wizards and the power of forced exit, the social conflicts became intractable. In 1995, after several crises rippled through the community and proved impossible to control without wizardly intervention, Curtis retracted the abdication and restored the rule of the wizard by fiat.¹⁰³ The experiments with democratic self-governance ended, and the wizards were back to being omnipotent (and overloaded) beings.

LambdaMOO was not unique in the failure of the community to administer its own affairs. MediaMOO, a community of researchers devoted to the study of the media as well as virtual worlds, built on the lessons of LambdaMOO and attempted to develop a representative democracy instead of a direct democracy.¹⁰⁴ As MediaMOO's founder, Amy Bruckman, explained at a conference in 1996, the community deliberately set out to avoid LambdaMOO's mistakes: it enabled its governing council to deliberate on rules for the well-being of all.¹⁰⁵ It also instituted a system of voting that was updated every hour, giving the representatives near immediate insight into the thoughts of their constituencies.¹⁰⁶ However, Bruckman never fully ceded control to the council, nor did the council want to become the sole seat of power. Perhaps predictably, the deliberative process became bogged down in matters of jurisdiction and procedure, and was further paralyzed by the notion that the council operated on the basis of consensus.¹⁰⁷ The voting and feedback systems also became dominated by those who were willing to invest the most time into arguing their opinions; succinct, clear and convincing counterarguments were no match for a continued onslaught of words.¹⁰⁸ Despite the sincere efforts of an extremely educated constituency to make democracy work, Bruckman eventually asserted her control over the power button; she was unwilling to let the larger MediaMOO experiment become derailed by an interesting but flawed experiment with representative democracy, and she pulled the plug on democracy for the well being of the community.¹⁰⁹

The experiences of LambdaMOO and MediaMOO demonstrate that establishing a legitimate, transparent, and inclusive self-governing mechanism in virtual worlds is difficult. This leaves virtual world providers in an un-

¹⁰² *Id.*

¹⁰³ *Id.* at 5.

¹⁰⁴ On the MediaMOO project, see Amy Bruckman & Mitchel Resnick, *The MediaMOO Project: Constructionism and Professional Community*, CONVERGENCE, Spring 1995, at 94.

¹⁰⁵ See Bruckman, *Democracy*, *supra* note 95.

¹⁰⁶ See *id.*

¹⁰⁷ See *id.*

¹⁰⁸ See *id.*

¹⁰⁹ See Bruckman & Jensen, *Mystery*, *supra* note 95; Bruckman, *Democracy*, *supra* note 95.

enviable position. On the one hand, they may want to establish self-governance to extract themselves from the difficulty of governing. On the other hand, self-governance may fail and consequently lead to a mass exodus of users and economic disaster for the provider. Faced with such a choice, providers have traditionally chosen to retain control.¹¹⁰ This does not mean that, in the absence of self-governance, virtual world providers are not accountable to the users of their virtual worlds.¹¹¹ The economic need to keep users satisfied does force providers to take user demands into account, but this mechanism of accountability lacks formalization, procedural fairness, and transparency—the very procedural qualities of rulemaking that democratic mechanisms in the real world have to offer.

B. Qualities of Enforcement

Once rules are set, they need to be enforced. In the real world, enforcement is done by a special institutional structure, the judicial branch, through a highly formalized process of adjudication.¹¹² Constitutionally guaranteed principles of due process ensure that enforcement happens in a rational, fair, transparent, and even-handed manner, in accordance with stated substantive rules.¹¹³ Virtual world providers are hard pressed to offer such guarantees. They do not possess similar institutional structures or processes, and they lack a constitutional rule system that guarantees certain qualities of enforcement. Although they may strive for efficiency in their

¹¹⁰ See Terdiman, *supra* note 64, at 1.

¹¹¹ See James Grimmelman, *Virtual Power Politics* 5–6 (Yale University Information Society Project Working Paper, Apr. 19, 2005), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=707301 (“Game designers are the governments of virtual worlds. Like real governments, they make the “laws” under which citizens must live. And like real governments, they are accountable, after a fashion, to their constituents. The mechanism by which that accountability is established is different—and arguably inferior—it is true, but this is not to say that no such mechanism exists.”).

¹¹² See, e.g., EUGENE BARDACH & ROBERT A. KAGAN, *GOING BY THE BOOK: THE PROBLEM OF REGULATORY UNREASONABLENESS* 31–34 (2002) (discussing the traditional system of enforcement in the area of regulation).

¹¹³ See, e.g., Jerry L. Mashaw, *DUE PROCESS IN THE ADMINISTRATIVE STATE* 4–5 (1985) (“Due process claims are asserted as claims of constitutional right, as limits on permissible activities of government. The part of the citizen’s bundle of constitutional rights that has developed under the due process clause is and always has been both substantive and procedural.”); see also TYLER, *supra* note 90, at 108.

decision-making,¹¹⁴ they do not necessarily strive for fairness; even if they do, they find it hard to reach, and not for want of trying.¹¹⁵

Virtual world providers have attempted to set up enforcement mechanisms, instituting them from the top-down as well as responding to participants who build them from the bottom-up.¹¹⁶ The latter case often occurs when a conflict arises, prompting users to suggest rules.¹¹⁷ Yet such bottom-up rulemaking will be useless unless there is an enforcement mechanism to back them up.

Some virtual world providers have gone as far as to let their users determine the mechanisms of enforcement. The result of one such experiment has become one of the most celebrated failures of self-government in MUD history. When the wizards of LambdaMOO abdicated authority over social conflicts, one character named Mr. Bungle took advantage of the vacuum of rule enforcement to pursue actions online for which he knew he would face no real-world consequences: he engaged in the verbal sexual assault of other avatars.¹¹⁸

When a more powerful character named Iggy captured Mr. Bungle in a virtual cage that was impermeable even to the miscreant's coding prowess,¹¹⁹ the actions were finally stopped, but the emotional damage to the community spurred weeks of discussion about what to do with Mr. Bungle:

¹¹⁴ An example of an attempt to introduce more efficient processes is ICANN's Uniform Domain Name Dispute Resolution Policy ("UDRP"). See Annette Kur, UDRP (unpublished study, Max-Planck-Institute for Foreign and International Patent, Copyright and Competition Law), <http://www.intelleprop.mpg.de/Online-Publikationen/2002/UDRP-study-final-02.pdf> (last visited June 7, 2005). But see Michael Geist, *Fair.com?: An Examination of the Allegations of Systemic Unfairness in the ICANN UDRP*, 27 BROOK. J. INT'L L. 903, 936 (2002) (suggesting that the UDRP "may indeed be biased in favor of trademark holders").

¹¹⁵ An attempt to guarantee fairness also motivated Sony Online Entertainment's decision to ban the trading of characters, items, or equipment in *EverQuest*. See Terdiman, *supra* note 64, at 1 (quoting Sony's PR director Chris Kramer: "We have people who have been playing for a number of years in *EverQuest*, . . . They've invested a large number of hours into creating their character, [and] amassing a small fortune in platinum. To have a person who has spent that much time and effort turn around and see someone else who has a character with equal abilities who has done nothing more than buy it on eBay, it turns off a lot of our players.").

¹¹⁶ See, e.g., Curtis, *supra* note 35, at 4 (creating a system of petitions and ballots for LambdaMOO to make "social decisions"); Bruckman, *Democracy*, *supra* note 95 (reporting on her experiment to introduce democratic control of the community MediaMOO).

¹¹⁷ See DIBBELL, *supra* note 87, at 19–21 (reporting on discussions of self-governance among LambdaMOO members after a "virtual rape" was committed in their community).

¹¹⁸ Mr. Bungle created a software voodoo doll that could take control of the actions of other characters and force them to perform (sometimes violent) sexual actions on themselves and on others. One night, he brought the doll into the most comfortable room in the MUD, the place where many characters were having an evening's conversation, and used the doll to force one woman's avatar named exu to perform a sexual act on him. The actual real-world creators of these characters were powerless to stop the code from executing; they watched in horror as the doll essentially raped avatar after avatar, before Iggy, an old-timer with great power, fired a special gun that did not kill, but trapped Mr. Bungle in a cage that not even the doll's potent software code could escape. See DIBBELL, *supra* note 87, at 13.

¹¹⁹ See *id.* at 13.

Did his actions deserve banishment? If so, by what process would the community be able to convince the wizards to delete him from the database? Mr. Bungle's actions led to hundreds, if not thousands, of communications among the users of LambdaMOO, but no consensus emerged as to what action to take.¹²⁰ With the community paralyzed, one of the wizards took it upon himself to quietly banish Mr. Bungle.¹²¹ That he made no announcement before executing this digital form of capital punishment, and participated in no part of a formal adjudication or sentencing process, caused almost as much of a stir as the crime itself.¹²² It indicated that the restoration of rule-by-fiat was not far away, and the inability of the democracy to cope with deliberations over rule enforcement had given way to autocratic rule by those with the power over the database.¹²³

Dissuaded by the failures of even the best-intended bottom-up enforcement attempts, commercial and not-for-profit providers of virtual worlds have struggled to find an enforcement process that is both efficient and responsive to the expectations of users. None have yet succeeded. Even though virtual world providers have at their disposal the necessary mechanisms to set and enforce rules, the application of these means poses governance challenges that no provider has been able to surmount.¹²⁴ *Ultima Online* tried to establish eBay-like reputational systems, which use stigma to color poorly behaved characters' every interaction and warn others not to trust them.¹²⁵ However, reputation only alters behavior within the limited scope of interactions where characters have choice over the interaction itself (as in economic transactions), rather than where one character initiates a coercive behavior such as the case of verbal sexual assault that happened in LambdaMOO.¹²⁶ Also, reputations are not *themselves* a method of enforcement; they may restrain interactions, but have no force to punish specific behaviors if the perpetrator does not appreciate the value of

¹²⁰ See *id.* at 22, 24.

¹²¹ See *id.* at 24–25.

¹²² See *id.* at 24.

¹²³ See *id.* at 25.

¹²⁴ Theorists debate whether virtual world self-governance could ever attain the qualities of real-world self-governance if users do not own ultimate control over their world. Bruckman noted, “you can't really have a democratic system unless the members of the community really own the machine.” See Bruckman, *Democracy*, *supra* note 95. Rulemaking, she suggests, has always been in the hands of the person who owns the power switch. As long as this does not change, true self-governance may remain elusive. See *id.* As Zittrain has pointed out, however, entire towns are owned by corporations. See Zittrain, *supra* note 91, at 1071–72. This does not make it impossible for self-governance to develop, though it requires regulatory control over how private actors may exercise their power over self-governing communities. See *id.*

¹²⁵ See Koster, *supra* note 83.

¹²⁶ See *supra* text accompanying notes 118–123.

his or her reputation in the same way as the mainstream of the user base.¹²⁷ Linden Lab's *Second Life* tried another method: It portrayed itself as a common carrier and platform rather than an administrator or government, leaving dispute resolution to its residents and avoiding the creation of a formal dispute resolution policy.¹²⁸ While Linden Lab does offer moderators who can help resolve disputes between private parties, it does not (yet) enforce the agreements made between these parties, unless they violate the Community Standards document or real-world laws,¹²⁹ and it will not establish any enforcement mechanisms unless or until they do develop a formal dispute resolution policy.¹³⁰ The virtual world *A Tale in the Desert* established a method for avatars to develop laws in a democratic fashion, so long as the enforcement of those laws could be made using software code.¹³¹ It also has a policy of not protecting players from these laws.¹³² Punishments have included limiting the geographic movements of an avatar as well as permanent banishment from the world.¹³³

In sum, two kinds of governance issues plague virtual worlds. The first ones arise because the governance system in virtual worlds is not as developed or mature as those found in the real world. Consequently, com-

¹²⁷ See Clayton P. Gillette, *Reputation and Intermediaries in Electronic Commerce*, 62 LA. L. REV. 1165, 1189–92 (2002); see also Paul Resnick et al., *Reputation Systems*, COMM. OF THE ACM, Dec. 2000, at 45.

¹²⁸ A recent case where a man erected a huge naked portrait of himself to face his female neighbor's property is testing this laissez-faire attitude: the woman not only complained to this gentleman, but raised a formal complaint to Linden Lab's abuse department. See Terdiman, *supra* note 73.

¹²⁹ See the comments made by Robin Linden on May 11, 2005, in a *Second Life* Town Hall meeting: "LL can't enforce private agreements between residents and until we implement dispute resolution we won't be able to." *Second Life Comes First?* (May 11, 2005), http://webmistressjulia.com/2005_05_01_SLBlogarchive.htm.

¹³⁰ Email from James Wagner Au, embedded journalist of *Second Life*, to Viktor Mayer-Schönberger (Mar. 16, 2005, 12:06:24 PST) (on file with author). One case pitted the owner of a home against an artist who constructed a giant toilet in the middle of an otherwise pastoral setting, ruining her view. The company did not resolve the conflict: a neighbor coded an invisible barrier that essentially made the toilet transparent when seen from the homeowner's property. See New World Notes (July 23, 2003), http://secondlife.com/notes/2003_07_21_archive.php.

¹³¹ See Interview by Julian Dibbell with Andy Tepper, President, eGenesis, N.Y. (Oct. 28–30, 2004), http://web.stream57.com/nylaw/548-000_SOPInterviews/sop_interview.asp?vid=03.

¹³² See *A Tale in the Desert*, Rules of Conduct, <http://atitd.com/conduct.html> (last visited June 5, 2005) ("We do not have a policy against offensive behavior, but be aware—if you offend the other players, they have the power to punish you. They can even exile you permanently from the land of Egypt—game over, don't come back. If you choose to behave in a way that is annoying to other players, we will not protect you from the wrath of the other players.").

¹³³ In one incident, the chief designer, Andy Tepper, created a roving salesman who caused long lines of people to queue for the opportunity to get special goods. Whenever a woman approached him, he would not sell to her and instead asked her, "Who is your master?" The discrimination caused a huge stir in the community, which lacked any means of ensuring that players could avoid such offensive behaviors on the part of the virtual world designers, particularly when those designers view the imposition of this behavior as part of the trials of the world itself. See Grimwell Online, <http://www.grimwell.com/index.php?action=fullnews&id=192> (last visited Oct. 20, 2004).

mentators have suggested that virtual worlds need to develop regulatory frameworks—including institutions, structures and processes—to offer a level and quality of governance users expect, often by comparison to governance in the real world. For example, Raph Koster has written on the individual rights of avatars.¹³⁴ Jack Balkin has pointed to the need to find the balance between regulation of virtual worlds as commercial or public spaces, and the protection of freedom of speech of both the game designers and users.¹³⁵ Gregory Lastowka and Dan Hunter have examined the very notion of virtual property rights and the rights that might extend to avatars as a hybrid of a real and virtual person.¹³⁶ And James Grimmelmann has suggested that economic realities force virtual providers to remain accountable to their users, even absent self-governance systems.¹³⁷

The second kind of governance issues arises because of the permeability of the border between the virtual and the real worlds. For example, someone—through a music object his or her avatar is operating—broadcasts someone else's music into a virtual world, thus prompting users of the virtual world to not buy this music in the real world.¹³⁸ Or a user of a virtual world sells information goods¹³⁹ of the virtual world in the real world, thus undercutting transactional regulations in the virtual world. These spillovers may lead to regulatory challenges both in the virtual and real worlds.

By focusing on the relationship between virtual worlds and the real world, such governance research moves beyond the study of regulatory challenges within a virtual world. Shifting from the analysis of in-world problems to the relational challenges between virtual and real worlds is an important step in the conceptualization of the full spectrum of regulatory challenges virtual worlds face. Yet the picture such analyses paint is still incomplete. Juxtaposing a virtual and real world misses the fact that there

¹³⁴ Raphkoster.com, Declaring the Rights of Players, <http://www.raphkoster.com/gaming/playerrights.shtml> (last visited Sept. 16, 2005).

¹³⁵ Balkin, *supra* note 74, at 68–73; Jack M. Balkin, *Virtual Liberty: Freedom to Design and Freedom to Play in Virtual Worlds*, 90 VA. L. REV. 2043, 2052 (2004); *see also* Peter S. Jenkins, *The Virtual World as a Company Town: Freedom of Speech in Massively Multiple Online Role Playing Games*, 8 J. INTERNET L. 1, 17–18 (2004) (arguing that free speech rights in virtual worlds depend on the right of public access).

¹³⁶ Lastowka & Hunter, *supra* note 56, at 49, 51–53; *see also* F. Gregory Lastowka & Dan Hunter, *Virtual Crimes*, 49 N.Y.L. SCH. L. REV. 293, 311–15 (2004) (analyzing the “issue of non-consensual appropriation and destruction of virtual properties” and potential liability under criminal law).

¹³⁷ *See* Grimmelmann, *supra* note 111, at 5–6.

¹³⁸ *See* Second Life Wiki, GJSL, <http://secondlife.com/tiki/tiki-index.php?page=GJSL> (last visited Mar. 26, 2006) (describing how to earn money in *Second Life* by working as a DJ); *see also* New World Notes, Lord of the Lessig Dance, http://secondlife.blogs.com/nwn/2006/01/lord_of_the_les.html (last visited Mar. 27, 2006) (describing a Creative Commons fundraiser in *Second Life* where Lawrence Lessig gave a lecture preceded by a dance party with music playing in *Second Life*).

¹³⁹ These information goods could be an avatar, certain virtual objects, or even intellectual property created by participants.

is not a single virtual world, but a multitude of them. The next chapter describes how this dynamic shapes the landscape of virtual worlds.

III. REGULATORY COMPETITION AND THE ECONOMICS OF VIRTUAL WORLDS

People joining virtual worlds have the power of choice. Based on a number of factors, including good governance and favorable contractual terms, they can choose the society in which they want to live, migrating their online activities from place to place with much greater ease than real-world immigrants can move their physical lives. Virtual world providers who operate within this market-dynamic measure their success in terms of the size of their user base, and they consequently pursue two goals: attracting people to join their virtual world, and retaining them over time.

A. Attracting New Users

The first goal of virtual world providers is to attract new users, which requires virtual worlds to stand out in some way relative to their competitors. A handful of strategies can provide such a competitive advantage:

- (1) **Content:** Virtual world providers may offer a more immersive experience and convincing simulacrum than their competition, with better graphics and richer content. Because creating new content takes time and effort and requires a significant, continuous investment in product development, differentiating on product is both the most obvious and the most costly strategy. It requires a continuous and expanding¹⁴⁰ revenue stream, which can be generated either by attracting more users or raising the price for the existing user base.
- (2) **Price:** Virtual world providers may lower their price, attracting users by offering a more affordable experience. Given relatively high fixed costs and relatively low recurring costs, virtual world providers may find this an attractive option.¹⁴¹ However, this strategy has a significant downside, as the market for virtual worlds has shown limited price elasticity. Joining a virtual world generally entails a significant time investment: users must not only acclimate to the software and the geography of the virtual space, but also build both relationships with new people and trustworthy reputations for their avatars. The differential between the rela-

¹⁴⁰ The revenue stream will have to increase over time, as established virtual world providers with their growing legacy software foundation face new competitors, which use the latest in software tools. Thus, modifying and adapting existing virtual worlds to meet the demands of users who compare it to the latest new virtual realms becomes more expensive over time.

¹⁴¹ See Raphkoster.com, Moore's Wall: Technology Advances and Online Game Design, <http://www.raphkoster.com/gaming/moore.shtml> (last visited Mar. 26, 2006). Koster estimates the cost of building a top-flight game at \$12 million in 2005.

tively small monthly fee of \$12 paid to a virtual world provider and the value associated with time invested in a virtual world translates into price inelasticity, and may explain why many virtual world providers offer their subscriptions at roughly the same price points.

- (3) Regulatory Framework: Finally, virtual world providers may compete by offering users a virtual environment more aligned to users' expectations and demands. For example, a company could provide its users with a more user-centric rule-making and enforcement framework; though, as the cases of LambdaMOO and MediaMOO exemplify, devising a suitable governance structure is difficult.¹⁴²

Unlike the real world, where attracting outside investment is only one consideration in domestic lawmaking, virtual worlds are commercial undertakings, and are therefore engaged in inter-jurisdictional competition, where the central goal is to attract new investment either through higher fees or, more likely, through an influx of new users paying for a monthly subscription. The commercial nature of virtual world providers is fundamentally different than most real-world governments, which, in the absence of an overarching profit motive, may decide to pursue strategies that do not maximize profit or growth. With limits placed on the amount of content virtual world providers can offer (as a function of the number of users they have and, thus, of their revenues), and financial constraints on how far they can lower their monthly fees to attract more users, competing on the regulatory framework that they offer becomes an increasingly important strategy.

In addition, network externalities make some virtual worlds more attractive for people to join: joining a larger community provides more possibilities for interaction and expansion of one's social network than joining a smaller virtual world.¹⁴³ Predictably, this network effect leads (at least ini-

¹⁴² For an analysis of the complex implications of such regulatory competition in the area of U.S. environmental regulation, see, for example, Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1233-34 (1992) ("[I]nterstate competition can be seen as competition among producers of a good—the right to locate within the jurisdiction. These producers compete to attract potential consumers of that good—firms interested in locating in the jurisdiction."). A real-world example of a jurisdiction courting investors is the Emirate of Dubai, where businesses domiciled in a government-sponsored business park called Dubai Internet City are promised to be issued a "Certificate of Incorporation . . . within mere hours." Dubai Internet City, Incorporation Services, http://www.dubaiinternetcity.com/join_our_community/incorporation_services/ (last visited Mar. 27, 2006). Similarly situated Singapore is trying to attract businesses by entirely committing itself to excellence in serving its citizens. See David K. L. Ma, *Delivering Results on the Ground: Improving Service to Citizens in Singapore*, 8 ASIAN J. POL. SCI. 137, 144 (2000) (attributing Singapore's economic success at least partly to its modernized public service).

¹⁴³ It has become widely accepted that, according to the so-called Metcalfe's law, the value of a network is proportional to the square of the number of users. See Bob Metcalfe, *There Oughta Be a*

tially) to strong first-mover advantages: whoever attracts the most users first is likely to attract more in the future. New competitors must offer a significantly better deal than the first mover in order to either attract users to switch to their virtual world, or to attract new people to join.¹⁴⁴

B. Retaining Users

The second goal of virtual world providers—user retention—has traditionally been easier to achieve. Participants in virtual worlds invest time and effort into acclimating to the software environment, exploring the virtual world, and building relationships with other participants. For this reason, switching from one virtual world to another entails significant transaction costs for users.¹⁴⁵

Traditionally, virtual world providers have reinforced this stickiness by maintaining maximum control over their environment, yielding two advantages. First, maximum control enables virtual world providers to react quickly to crises in their virtual community, such as when a user breaks the rules or creates an unplanned innovation or behavior that threatens to erode confidence in the virtual world. For example, Sony Online Entertainment had to perform such an intervention when an *EverQuest* user devised an ingenious scheme that threatened to introduce the online equivalent of the Industrial Revolution to the economy and thereby devalue the in-world currency.¹⁴⁶ Such stabilization is valued by users who have a substantial in-

Law, N.Y. TIMES, July 15, 1996, at D7 (Late Ed.), available at <http://www.nytimes.com/library/cyber/week/0715laws.html>; see also Posting of Raph Koster to Terra Nova, http://terranova.blogs.com/terra_nova/2005/08/the_golden_lm_w.html (Sept. 2, 2005, 13:31:20 EST) (suggesting that there is a power law distribution of virtual worlds by size, just like cities in the United States). See generally OZ SHY, THE ECONOMICS OF NETWORK INDUSTRIES 3–6 (2001).

¹⁴⁴ Participating in a virtual world takes time and effort. Such investment is difficult to make for multiple virtual worlds in parallel. Users may, however, sometimes tire of a virtual world and thus migrate to another one after a period of time. This tendency has even created new markets for “migration services” like Playvault, which offers to transfer and convert game money from one virtual world to another. See Playvault.com, <http://www.playvault.com> (last visited Mar. 27, 2006).

¹⁴⁵ See EDWARD CASTRONOVA, SYNTHETIC WORLDS 139–40 (2005); Steven Johnson, *When Virtual Worlds Collide*, WIRED, Apr. 2006, at 125, available at http://www.wired.com/wired/archive/14.04/collide_pr.html.

¹⁴⁶ See, e.g., Greg Sandoval, *Sony to Ban Sale of Online Characters from its Popular Gaming Sites*, CNET NEWS.COM, Apr. 10, 2000, <http://news.com.com/2100-1017-239052.html?legacy=cnet>; Daniel Terdiman, *Virtual Cash Breeds Real Greed*, WIRED NEWS, Jan. 23, 2004, <http://www.wired.com/news/games/0,61999-0.html> (citing Dan Hunter, who thinks that the biggest threat to the success of a virtual currency exchange may be the devaluation of the currencies themselves). When *EverQuest* users gain sufficient experience, they can produce virtual goods, like virtual swords. These virtual goods can then be sold in a virtual store in *EverQuest* for a fixed price. Through a shortcut, one user was able to produce and sell many virtual goods in a short period of time, simultaneously amassing huge wealth for himself and devaluing both manual labor and the in-world currency. In essence, the user had caused an industrial revolution, threatening the savings of hundreds of thousands of users. Sony intervened and modified the software to stop the shortcut from working. See Terdiman, *supra* note 64, at 1–2. Such intervention is possible because of the complete control providers retain over their worlds.

vestment in the virtual world. Second, the maximum control that traditional virtual world providers enjoy implies ownership over everything about and within the game, including any virtual property created by the players. As a result, users who want to switch to a different virtual world face huge costs. Nothing that they have built in one virtual world—friendships, reputation, and identity, not to mention any savings in virtual currency—can be transferred to another world. This combination of lock-in and control makes it relatively easy for virtual worlds to retain their users. New competitors can only break into the virtual world market if they offer a radically better deal.

C. A New Deal

In 2003, one such potential competitor emerged: Linden Lab, the provider of a new and sophisticated virtual world called *Second Life*. At the *State of Play* Conference in November 2003, Linden Lab made what turned out to be an important strategic move. It granted its users the right to own the IP to their creations,¹⁴⁷ and thereby introduced the concept of transferable property into their virtual world.¹⁴⁸

This strategic adaptation altered the landscape of virtual worlds. *Second Life* was no longer another virtual Disneyland, in which consumers experience what the company has provided for them; rather Linden Lab turned it into a marketplace, in which everybody can build and own property and utilize it for one's own gain. With this shift in the ownership of property, *Second Life* undermined the traditional concept of stickiness based on control. Because virtual worlds are nothing but information, if users can own their IP in virtual worlds, they can own whatever they build and create. When they leave, they experience lowered switching costs.¹⁴⁹ They are like merchants moving from one marketplace to the next, or holders of resources (such as capital) selecting a suitable jurisdiction in a time of globalization.

¹⁴⁷ In the *Second Life* Terms of Service, Linden “acknowledges and agrees that . . . you will retain any and all applicable copyright and/or other intellectual property rights with respect to any Content you create using the Service.” *Second Life* Terms of Service, *supra* note 86, § 5.3. However, in the same section, Linden also reserves some rights, such as “a royalty-free, fully paid-up, perpetual, irrevocable, non-exclusive right and license to use and reproduce (and to authorize third parties to use and reproduce) any of your Content” for marketing or support purposes. *Id.* Further, Linden states generally that all data on its servers are subject to deletion, alteration or transfer. *See id.* § 4.3.

¹⁴⁸ *See* Dave “Fargo” Kosak, *The Future of Massively Multiplayer Gaming*, GAMESPY.COM, Nov. 13, 2003, <http://archive.gamespy.com/amdmog/week8/index.shtml>; *see also* Cory Ondrejka, CHANGING REALITIES: USER CREATION, COMMUNICATION, AND INNOVATION IN DIGITAL WORLDS 18–19 (2005), available at <http://www.themis-group.com/uploads/Changing%20Realities.pdf>.

¹⁴⁹ This is not just true between virtual worlds, but also between a virtual world and the real world. For example, one software programmer took a game he created in *Second Life* to the real world and sold it in the real world to a startup offering games for mobile phones. The programmer made both virtual and real money by commercializing his software in both realms. *See* Ann Grimes, *Digits*, WALL ST. J., Mar. 3, 2005, at B3.

Before *Second Life*, competition among virtual worlds was largely about first-time users, as most people tend to belong to only one virtual world at a time.¹⁵⁰ But ever since the grant of property ownership in *Second Life*, competition among virtual worlds is also about retention. In this very important aspect, granting IP rights has made virtual world providers act more like governments who are competing to attract mobile resources.

The impact of *Second Life*'s decision to grant IP rights extends to yet another level. If participants can join a virtual world and port their extant informational property to that environment, virtual world providers have less incentive to offer their own content.¹⁵¹ Virtual world providers may evolve from content providers to facility providers—that is, providers of virtual space or real estate, which will be filled by the informational property that its participants either bring along from other worlds or create while they are members. This dynamic in turn weakens virtual world providers' ability to use content to retain customers (one of the three primary strategies by which they can differentiate themselves); at the same time, competition for existing users heats up due to a newfound ability for users to take their IP with them when they migrate from one virtual world to another.

To be sure, providers can refuse to follow the *Second Life* model, and continue to compete on the content that they design and offer in their virtual worlds. But once tens of thousands of users start designing their own content, and possess all the incentives inherent in the ownership of the IP rights to their creations, the comparatively limited amount of content that providers create in-house with dozens or at best hundreds of employees cannot sustain any provider's competitive edge.¹⁵² Network effects will only exacerbate this problem, because users will join the virtual worlds with the most content and activity. As the ability of providers to compete through content they control slowly erodes, they will eventually be forced to switch to an alternative differentiation strategy. Within this dynamic, lowering prices will not be a long-term solution for traditional virtual world providers competing with virtual world providers that grant IP rights. Because *Second Life*-type providers do not have to create their own content, these virtual world providers can use the resulting savings either to lower user fees or to create

¹⁵⁰ See Johnson, *supra* note 145, at 125.

¹⁵¹ *Second Life* will soon offer its users a technical means to "export" intellectual property created in *Second Life*. Users will then be able to take objects they have created in *Second Life* and export them into a file format that users can use in other software packages, and presumably other virtual worlds. Linden Lab feels this will stimulate users to create in *Second Life*—they will not have to fear that their creations' fate is tied to *Second Life*. Cory Ondrejka, CTO, Linden Lab, Remarks at the Berkman Center Luncheon Series (Nov. 27, 2005).

¹⁵² At the 2005 Austin Game Conference, *Second Life* engineer Jim Purbrick was quoted as saying that the 60,000 then members of the world were creating content equivalent to what 300 full-time designers could develop. See Daniel Terdiman, *Making the Virtual World a Better Place*, CNET NEWS.COM, Oct. 29, 2005, http://news.com.com/2102-1043_3-5920694.html.

an even better simulacrum.¹⁵³ Traditional providers, on the other hand, will have to continue to invest in content creation. The resulting cost disadvantage will make it impractical in the long run for traditional providers to compete on price.

While new users may choose worlds like *Second Life*, the high switching costs for users of traditional virtual worlds is likely to dissuade them from moving to *Second Life*-type worlds, at least in the short run. Yet, due to network externalities, each user who does make the switch to a *Second Life*-type world lowers the benefits for all other users of their original virtual world, particularly by lowering the revenue stream available to the traditional providers for creating new content. Over time, like conventional TV stations, the traditional virtual world providers may find themselves in a challenging double spiral of progressively lower revenue available for content creation and diminishing network value due to falling numbers of participants.¹⁵⁴ It may not happen in the near term, but, over time, economics may force traditional virtual worlds to follow *Second Life*'s lead.¹⁵⁵ Sony Online Entertainment has already had to reverse its negative stance towards player-to-player auctions of virtual objects. After long and bitter opposition to the sale of *EverQuest* objects on eBay and IGE, Sony Online Entertainment saw that market demand and revenue opportunities of virtual object sales were too great to ignore.¹⁵⁶ In July 2005, Sony launched Station Exchange, a site which its Senior Vice President and CFO, John Needham, characterized as "SOE-bay."¹⁵⁷ In its first three months of operation, Sta-

¹⁵³ In September 2005, *Second Life* dropped its monthly subscription model entirely, substituting this model with fees associated with buying and maintaining land. CNET News.com estimates that these land-use charges are netting Linden Lab \$400,000 per month. See Daniel Terdiman, '*Second Life*' Membership Now Free, CNET NEWS.COM, Sept. 8, 2005, http://marketwatch-cnet.com.com/Second+Life+membership+now+free/2100-1043_3-5855481.html.

¹⁵⁴ See John Gartner, *It's the End of TV as We Know It*, WIRED NEWS, Jan. 7, 2000, <http://www.wired.com/news/technology/0,1282,33503,00.html>.

¹⁵⁵ For a short analysis of how this dynamic operates within a power law relationship, regulating the populations of virtual worlds, see a comment by Raph Koster on TerraNova:

Back in 2003 I did a graph of available MMORPGs in the Western market (which meant it included a few Asian games). What I found was a power-law distribution typical of a network effect. One characteristic of these distributions over time in many domains is that the curve is essentially invariant. For example, the curve of "biggest cities in the US" has always been the same shape. The #1 city has always been x times larger than the #2 city, and so on, although which cities these were has changed over time. When a city rose in population or declined, it was as if the other cities "knew" what new numbers to adjust themselves to in order to retain the proper shape of the curve. According to this theory, once you get bigger than the biggest game, you're on an inevitable path to the next "station" on the graph. Once you fall in size, you're on a track to shrink until you fit the curve.

Posting of Raph Koster to Terra Nova, *supra* note 143.

¹⁵⁶ For an interview with John Smedley, President of Sony Online Entertainment, see *Sony Online Discusses the MMO Market*, BUS. WK. ONLINE, Nov. 9, 2005, http://www.businessweek.com/innovate/content/nov2005/id20051109_602467.htm.

¹⁵⁷ See N. Evan Van Zelfden, *MMO Giants Prepare for War*, BUS. WK. ONLINE, Nov. 11, 2005, http://www.businessweek.com/innovate/content/nov2005/id20051111_428174.htm.

tion Exchange had \$540,000 in real money transfers of virtual objects, with Sony taking a ten percent commission on each transaction.¹⁵⁸ Sony Online now plans to roll out the auction model to its other virtual worlds,¹⁵⁹ and may even add a product that will have no monthly subscription fee, but will derive its revenues from selling virtual objects and services to its players.¹⁶⁰

D. Constitutionalization

The story of *Second Life* is an intriguing story of information economics, but the legal implications are much larger than they appear. By granting its participants IP rights, *Second Life* has given its users a significant stake in the virtual world. Individually, the users now “own” a part of *Second Life*, and, as a collective body, *Second Life* participants thereby “own” most of the content of the virtual world. As a result, participants retain significant control over their world and, by extension, power.

Constitutional theorists will be quick to point out that the source of this power is still maintained by *Second Life*'s provider, Linden Lab. Theoretically, Linden Lab could—if it wanted to—reverse its policy. After such a change, any users who create new content would once again have to consent to transferring their IP rights to Linden Lab. Because of this (at least theoretical) reversibility of the decision to grant users of virtual worlds “rights,” Linden Lab's decision is not formally akin to signing a virtual Magna Carta. With or without “rights” granted to its users, Linden Lab's relations to *Second Life*'s content creators remain contractual on an individual, rather than societal, level.

Within this dynamic, suppose Linden Lab were to grant its users a “right” to decide—perhaps through referenda—what changes they want in the world. Such a delegation of governance to the people of *Second Life* might be viewed as a social contract, but the legal reality is different. At best, only the contractual relationship between Linden Lab and each of its customers would change. Should Linden Lab violate this right, users would have no recourse other than leaving *Second Life*.¹⁶¹ Their only choice would be the exit.¹⁶²

¹⁵⁸ See Roger Parloff, *From Megs to Riches*, CNNMONEY.COM, Nov. 18, 2005, http://money.cnn.com/magazines/fortune/fortune_archive/2005/11/28/8361953/index.htm.

¹⁵⁹ See Grimwell, *Sony Station Exchange to Be a Part of All SOE Games*, GAMERGOD.COM, Nov. 28, 2005, http://www.gamergod.com/article.php?article_id=2663.

¹⁶⁰ See *supra* note 156 and accompanying text.

¹⁶¹ *Second Life*'s Terms of Service stipulate that “Linden may amend this Agreement . . . and/or modify the Community Standards at any time in its sole discretion by posting the amended Agreement or modified Community Standards at <http://www.lindenlab.com>, <http://www.secondlife.com>, another current website designated by Linden or by communicating these changes through the primary contact methods you have established with us.” See *Second Life Terms of Service*, *supra* note 86, § 1.2.

¹⁶² The concepts of “voice” and “exit” were introduced by Albert O. Hirschman. ALBERT O. HIRSCHMAN, EXIT, VOICE, AND LOYALTY: RESPONSES TO DECLINE IN FIRMS, ORGANIZATIONS, AND STATES 4 (1970).

There is a very important difference, however, between Linden Lab granting such participation “rights” and the “rights” it granted its users in November 2003. What Linden Lab granted—IP rights—are rights guaranteed by real-world intellectual property laws. Granting IP rights in virtual worlds injects real-world guarantees into a virtual world, creating a relationship between the two realms that we described as permeability.¹⁶³ It binds Linden Lab not simply to a contract with its customers, but to the social contract of Linden Lab’s real-world jurisdiction. Any content created thereafter by *Second Life*’s users is their intellectual property, not Linden Lab’s. Should Linden Lab decide to change its policy again, content created before that change would remain the users’ property.

Granting users real-world IP rights in their creations therefore embeds real-world legal DNA into *Second Life*’s genetic makeup, and subjects Linden Lab to an external authority. In a manner similar to a constitutional moment,¹⁶⁴ Linden Lab constrained its future behavior through its own decision. As economic forces prompt more virtual world providers to follow *Second Life*’s lead, we may witness an ever-increasing “constitutionalization”—voluntarily constraining norms in virtual spaces through norms of a real-world jurisdiction. It is important to understand, however, that such a process of constitutionalization, while constraining what virtual world providers can do vis-à-vis virtual world users, is not synonymous with a movement towards democratic, or even better, governance within virtual worlds. Linden Lab provided a constitutional moment, not a democratic one.

Perhaps the most intriguing insight into the constitutionalization of virtual worlds is that it has been possible because of a confluence of two factors: property rights and the permeability between the virtual world and the real world. Judge Easterbrook once famously suggested that virtual spaces need stable property rights.¹⁶⁵ Linden Lab did not heed his call because a real-world government mandate forced it to act, nor because of aggressive popular demand among its users. Rather, Linden Lab introduced IP rights because of second-order market forces. The need to compete—and thus retain and enhance its power vis-à-vis other virtual worlds—prompted it to relinquish power within its own jurisdiction. Yet the market only provides half the story. Without a real-world legal system, and a real-world guarantee of IP rights that transcend virtual worlds and their own internal rules,

¹⁶³ See *supra* text accompanying notes 138–39.

¹⁶⁴ See Bruce Ackerman, *Constitutional Politics/Constitutional Law*, 99 YALE L.J. 453, 545 (1989) (arguing that a “distinctive aspect of the American constitutional tradition” is its “evolving commitment to dualistic democracy: its recurring emphasis on the special importance of those rare moments when political movements succeed in hammering out new principles of constitutional identity that gain the considered support of a majority of American citizens after prolonged institutional testing, debate, decision”); see also BRUCE ACKERMAN, *WE THE PEOPLE—FOUNDATIONS* 58–80 (1991).

¹⁶⁵ Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 212–13.

Linden Lab's property rights guarantee would lack quasi-"constitutional" nature. This is the lesson of this part of the narrative: real-world law functions as a catalyst for the maturation of virtual world governance.

Once virtual worlds constitutionalize by granting IP rights to their users, market forces will continue to fuel an intense regulatory dynamic. In other words, jurisdictions may be forced to relinquish power within their realms in order to gain competitive advantage among their peers, enabling a capital mobility that reinforces the jurisdiction's need to compete ferociously with others for this capital.¹⁶⁶ Perhaps unintentionally, Linden Lab unleashed the forces of globalization into the sphere of virtual worlds, thus providing us with a provocative case of regulatory dynamics.

IV. COMPETITION, COORDINATION, AND TRANSPLANTATION: VIRTUAL WORLDS AND REGULATORY INTERDEPENDENCE

Linden Lab's decision to grant ownership of IP to its users forces its competitors into a difficult choice. They can either continue to invest heavily in content development and accept the economic disadvantages of competing directly against the content that *Second Life*'s users are creating, or follow Linden Lab's lead and grant IP ownership to their own users. Users too, now face a choice. They can either choose virtual worlds that permit them to retain their IP rights (like *Second Life*), or cede ownership to the virtual provider in exchange for rich content that a central team of professionals creates for them.

Ironically, the very innovation that energizes *Second Life*'s strategy influences the choices users will make, thereby creating a mechanism that prevents the company from becoming too dominant in the marketplace. Whenever virtual world participants retain their IP rights, they experience lower switching costs. Should they ever choose to exit one provider, they can more easily port their information goods to a competitor. They would use the export function of one virtual world to extract the digital representation of their IP from the virtual world they want to exit. This would create files containing the IP, which then could be imported through a technical feature of the virtual world to which they want to migrate. To be sure, exiting users still lose their social network, and thus incur some transactional cost. However, they can at least take the fruits of their creative labor with them. Perhaps the analogy to use is that traditional virtual worlds do not

¹⁶⁶ See, e.g., JAGDISH BHAGWATI, IN DEFENSE OF GLOBALIZATION 22 (2004) (summarizing some of the main arguments of globalization critics: "corporations would . . . be able to seek profits by searching for the most likely locations to exploit workers and nations, thereby putting intolerable pressure on their home states to abandon their gains in social legislation"); MANUEL CASTELLS, THE RISE OF THE NETWORK SOCIETY 105 (1996) (pointing to the importance of the "political capacity of national and supranational institutions to steer the growth strategy of those countries or areas under their jurisdiction" for staying competitive in a global economy); ETHAN B. KAPSTEIN, GOVERNING THE GLOBAL ECONOMY: INTERNATIONAL FINANCE AND THE STATE 7 (1994) ("[E]conomic globalization intensifies competition among nation-states.").

permit their emigrants to take any property with them, while *Second Life*-like providers let emigrants leave with their belongings. One can easily imagine what could happen if a group of *Second Life* users ever becomes disaffected with Linden Lab's management of the virtual world. They would take their content *en masse* and move to a different virtual world, leaving behind a barren virtual space. In this sense, the loss of every user who switches away from *Second Life* is felt more directly and immediately than in worlds where all IP is owned by the provider.

In this sense, a universe of virtual world providers following the *Second Life* model will approximate a situation in which the public votes with their feet more so than jurisdictions in the real world. Users who are willing to pay more—either in terms of capital (monthly fees) or time investment—will expect more from the virtual world that they choose; others may prefer a less sophisticated world at a cheaper price. In abstract terms, Charles Tiebout famously described such a universe of people who use perfect residential mobility to choose the jurisdiction in which they wish to settle, based solely on their preferences.¹⁶⁷

As this practice of granting IP rights spreads among virtual world providers, how will these providers compete with each other? They will not be able to compete on content, because they will not control content anymore. Although they will be able to compete on size (and thus, by extension, on the availability of user-supplied content), virtual worlds will have lost “stickiness” due to lowered switching costs, leaving providers with less control over size. They will still be able to compete on price, but with no content and no population to control, they will face the fate of commodity providers even more quickly.

Service continues to offer a path of differentiation for virtual world providers. For example, providers could offer superior content creation tools and a more attractive user environment (with easy capabilities to search objects and places in the virtual world), and thereby—temporarily at least—achieve competitive advantage.¹⁶⁸ Related to this and facilitated by constitutionalization—the fact that granting IP rights is, after the fact, very hard for an individual provider to undo—virtual worlds may also compete on the regulatory frameworks they provide. Would this situation lead to an unfettered form of regulatory competition? Applying what we know about regulatory interdependence and cross-jurisdictional dynamics, we are going to provide some educated guesses based on three modes of regulatory interaction: regulatory competition, coordination, and transplantation.

¹⁶⁷ Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 423–24 (1956) (“If consumer-voters are fully mobile, the appropriate local governments, whose revenue-expenditure patterns are set, are adopted by the consumer-voters.”).

¹⁶⁸ In the long term, however, such a strategy may be undermined by the development of cross-world, cross-platform tools providing services from content creation to search.

A. Regulatory Competition

One may be tempted to conceive of regulatory competition among virtual world providers in terms of a regulatory “race for the bottom” that will emerge between virtual worlds.¹⁶⁹ Within this dynamic, which has been termed the Delaware effect,¹⁷⁰ virtual worlds with more permissive regulatory frameworks are thought to fare better than those with more restrictive ones, because participants in these worlds prefer a situation with more rights (and thus more control) and less virtual government intrusion to a scenario with less rights and more government intrusion.¹⁷¹ This dynamic would put pressure on the virtual world providers with restrictive frameworks to loosen their reins, so as to become more permissive and better able to retain existing users and attract new ones. Holding to this view, virtual worlds should eventually converge around the most permissive, least constrictive regulatory framework, one in which most—if not all—activities are permitted.

Other commentators point out that regulatory competition may lead to a race in the opposite direction—to the top rather than to the bottom—and use research on California emissions standards as a case in point.¹⁷² Races to the top appear when companies can reap efficiencies yielded by economies of scale when selecting the “best” standard available based on market preferences.¹⁷³ In the case of California emissions, it is more efficient for manufacturers to produce a single automobile model that complies with the toughest emissions standards—even if its cost structures are slightly higher—than to produce different models for each jurisdiction, each with its own emissions standards.¹⁷⁴

This supposition has been bolstered by a re-evaluation of the Delaware effect. Initially it was assumed that firms incorporate in Delaware because it offers the most lenient and permissive corporate legal framework.¹⁷⁵ However, a re-evaluation of existing evidence seems to indicate that when a new company must select the jurisdiction for its incorporation, that choice has at least as much to do with how well the state applies and administers

¹⁶⁹ See, e.g., William L. Cary, *Federalism and Corporate Law: Reflections Upon Delaware*, 83 YALE L.J. 663, 705 (1974) (arguing that regulatory competition has led to a deterioration of standards in state corporate laws spearheaded by Delaware).

¹⁷⁰ *Id.*

¹⁷¹ This effect may be amplified in virtual worlds because of the libertarian or anti-authority leanings of many of the early adopters of technology platforms.

¹⁷² See DAVID VOGEL, TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN A GLOBAL ECONOMY 248, 259–60 (1995).

¹⁷³ See David Lazer, *Regulatory Interdependence and International Governance*, 8 J. EUR. PUB. POL’Y 474, 478 (2001).

¹⁷⁴ *Id.*

¹⁷⁵ See Cary, *supra* note 169, at 668–70 (describing the development of corporate law in Delaware).

its corporate law as with the substance of the state's corporate law itself.¹⁷⁶ Because Delaware judges are well versed in the intricacies of corporate law and work in a system wherein clerks, consultants, banks, lawyers, and accountants offer a wealth of expertise, the state has created an efficient governance environment, which results in a network effect that continues to attract more businesses to its system of incorporation.¹⁷⁷

The important lesson from both California and Delaware is that regulatory competition may prompt people to choose the jurisdiction with the best regulatory and governance framework rather than the one with the least restrictive regulations. Applying this lesson to the problems of virtual worlds, one might conclude that we will witness a race to the top instead of a race to the bottom. Will competition among the virtual world providers to attract users through the use of norms lead to a democratic wonderland, in which virtual worlds converge around regulatory frameworks facilitating democratic participation? Will virtual worlds prove that a society of free people with guaranteed property rights will ineluctably move towards democracy? Is the market the great democratizer after all, at least in the rarified space of virtual worlds? Not necessarily.

Both arguments—that a race to the top or a race to the bottom will occur among virtual world providers—may rest on incorrect assumptions. Delaware-type races to the bottom take place if one group of people is selecting a jurisdiction against the obvious preference of another group: managers select Delaware because of corporate laws favoring them over shareholders, while shareholders would prefer to incorporate elsewhere, but fail to get their way because—as collective action theory explains—they lack group cohesion. This is a completely different situation than virtual worlds, in which individual users choose suitable providers.

The race-to-the-top argument is also flawed, for two reasons. First, the evolution of virtual worlds' regulatory frameworks depends on how “good governance” is interpreted by their users.¹⁷⁸ Some users may understand good governance in terms of the opportunities it opens for democratic participation. Others might stress the rule of law and adjudicative fairness. A

¹⁷⁶ See, e.g., Cary Coglianese et al., *The Role of Government in Corporate Governance*, 1 N.Y.U. J. L. & BUS. 219, 222 (2004) (identifying the question of how to enforce the law as a fundamental public policy challenge that also affects jurisdictional competition).

¹⁷⁷ See Daniel A. Fulco, *Delaware's Response to Inefficient, Costly Court Systems and a Comparison to Federal Reform*, 20 DEL. J. CORP. L. 937, 963 (1995) (“Delaware currently offers many benefits to its corporate citizens, few of which are more valuable than its responsive judicial system.”); Mark J. Roe, *Delaware's Competition*, 117 HARV. L. REV. 588, 594 (2003) (“Delaware also has a specialized, highly regarded judiciary, acting without a jury. The judges take pride in keeping up with business trends, having good business sense, knowing their own limits, and reacting quickly as professionals.”); see also David Lazer & Viktor Mayer-Schönberger, *Governing Networks: Telecommunication Deregulation in Europe and the United States*, 27 BROOK. J. INT'L L. 819, 829 (2002).

¹⁷⁸ See RHEINGOLD, *supra* note 19, at 54 (pointing to Benedict Anderson's idea of “imagined communities” that only exist by virtue of a common acceptance in the minds of a group of people).

third faction may prefer efficient governance over democratic and fair processes and still call the resulting system “good.” In short, the reassuring label of “a regulatory race towards good governance” may *not* imply movement towards a virtual democratic nirvana, but perhaps towards an efficient virtual Singapore—a well-organized city-state, in which the sidewalks are clean, the economy is thriving, and the citizens are well fed, but fundamental elements of democracy, like free speech and government transparency, are lacking.

Second, the “good governance” argument presupposes that people prefer better governance over more lenient rules—i.e., that the Delaware revisionists have correctly pegged the influence of the governance environment, and the original Delaware hypothesis is wrong. However, this claim may not be universal and may depend heavily on the perceived costs and benefits of the alternatives. For some groups, a regulatory framework that reflects their needs is more important than maximizing democratic participation or judicial fairness. If a religious person cannot practice her faith, or if a person is prohibited from being together with somebody she loves because of her sexual orientation, she may prefer to switch to a more accommodating virtual world rather than fight to change the rules of her original virtual world through participatory mechanisms. In short, in cases of substantive disagreement, “exit” may be preferable to “voice” for some users.¹⁷⁹

So the result of a race to the top may not take the form of a convergence of regulatory frameworks around principles of democracy and fairness, but rather the form of a rich, evolving marketplace of governance systems catering to a vast spectrum of different preferences. Certainly, given the Western world’s long history of deliberative legislatures and independent judiciaries, many in the virtual worlds market will compete on establishing the notion and practice of “good governance,” and the implementation of democratic processes and fair systems of public administration.¹⁸⁰ Some virtual world providers, however, may be more libertarian and offer their users more freedom and fewer constraints in certain regulatory areas. A third group of virtual world providers may thrive on providing efficient governance above all, the online equivalent of making the trains run on time.

There will still be races—to the top, to the bottom, and even races apart. Because user preferences change over time, any equilibrium among virtual world providers will be temporary. Virtual world providers will

¹⁷⁹ Cf. HIRSCHMAN, *supra* note 162, at 30 (“To resort to voice, rather than exit, is for the customer or member to make an attempt at changing the practices, policies, and outputs of the firm from which one buys or of the organization to which one belongs. Voice is here defined as any attempt at all to change, rather than to escape from, an objectionable state of affairs . . .”).

¹⁸⁰ Compare the abovementioned attempts to promote democratic governance in LambdaMOO and MediaMOO. See *supra* note 116 and accompanying text.

compete ferociously for users based on users' regulatory preferences. But in the absence of a convergence of user preferences, these races will not bring about an overall convergence towards one particular regulatory framework. In this sense, they may become "races apart." Moreover, such races will not be fueled solely by competing regulatory frameworks.

B. Coordination

The need to attract and retain users prompts virtual world providers to differentiate and compete against each other. Superficially, and in contrast to regulatory interdependence in the real world,¹⁸¹ there is little need for coordination between virtual worlds. Unlike real-world jurisdictions, virtual worlds are like self-contained islands. They do not share common resources, like air, space or the sea, and do not have to manage common borders with one another.¹⁸²

Yet, the ability of users to leave one virtual world and join another may—perhaps surprisingly—create a need to coordinate.¹⁸³ Virtual worlds will want to make it as easy as possible for users to join. As more virtual worlds move towards the *Second Life* model of granting IP rights to users, switching becomes cheaper, prompting providers to tempt existing users of other virtual worlds to switch. Users, however, will still have to export their IP from one virtual world and import it into another. It is in the virtual world provider's interest to make this import of IP as easy and simple as possible. To create software that allows for easy importation of information goods designed in other virtual worlds, providers will have to uncover and understand the way that other virtual worlds represent that content. This will be difficult, as there is little obvious incentive for virtual world providers to make public how content is represented in their worlds. Doing so would only enable other virtual worlds to create import functionality, and thus lure users away from one's virtual world. Moreover, because of real-world IP laws, virtual world providers will have legal difficulties in reverse engineering how other virtual world's content coding works.¹⁸⁴

¹⁸¹ Numerous regimes of formal and informal regulatory interdependence with a strong element of coordination exist. The European Union, for example, is a formal regime of regulatory interdependence. See Lazer & Mayer-Schönberger, *supra* note 177, at 829–35. Slaughter has described informal regimes of regulatory cooperation. See ANNE-MARIE SLAUGHTER, A NEW WORLD ORDER 62–64 (2004).

¹⁸² As such, one may (erroneously) assume that virtual worlds closely resemble Tiebout's theoretical model, *see* Tiebout, *supra* note 167; however, this overlooks switching costs (which despite being greatly reduced will remain) and spillover effects.

¹⁸³ Cf. CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY 103–04 (1999); SHY, *supra* note 143, at 4–5.

¹⁸⁴ The Digital Millennium Copyright Act (DMCA) bans acts of circumvention, and the distribution of tools and technologies used for circumvention, of copyright protection systems. Digital Millennium Copyright Act § 103, 17 U.S.C. § 1201 (2000). Although the DMCA also includes a number of exceptions for certain activities, such as reverse engineering, *see* 17 U.S.C. § 1201(f), these exceptions have been criticized for being too narrow. *See, e.g.,* YiJun Tian, *Problems of Anti-Circumvention Rules in the DMCA & More Heterogeneous Solutions*, 15 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 749,

This leaves virtual world providers in a bind. They will have a difficult time creating the import functionality desired by potential new customers. By the same token, they will not wish to divulge information about their own system, lest they make themselves vulnerable. The result will be a stalemate, unless one adds users to the equation. Users have a keen interest not only in being able to own the IP of the virtual objects that they create, but also in being able to move them from one virtual world to another without excessive trouble. For users, having IP rights in principle is of little value if the content they have created is not transferable in practice. User pressure may lead providers to make transferability possible.¹⁸⁵ Game theory, however, indicates that they should do so only if other providers reciprocate.¹⁸⁶ Otherwise they risk providing a public good on which other providers free-ride.

This problem can be solved through coordination, at least in principle.¹⁸⁷ Providers could share with each other the relevant information to make content transferable from one world to the other. This would heed user demands but also ensure that every provider who does share would have access to the information of others as well. Eventually such coordination may lead to common standards on how content is represented in virtual worlds. Complementing the technical issue of transferability, coordination may extend to the legal framework within virtual worlds. It may make

772–74 (2005) (“Although the DMCA was not intended to alter user privileges (including fair use) established by traditional copyright law, overly narrow exceptions compromise this aim, to the detriment of copyright content users and, in some circumstances, copyright owners.”); Diane M. Barker, Note, *Defining the Contours of the Digital Millennium Copyright Act: The Growing Body of Case Law Surrounding the DMCA*, 20 BERKELEY TECH. L.J. 47, 47 (2005) (concluding “that almost six years under the DMCA have proved . . . the limited scope of the exceptions”). For a similar debate on the anti-circumvention rules in the European Community Copyright Directive, see, for example, Stefan Bechtold, *Digital Rights Management in the United States and Europe*, 52 AM. J. COMP. L. 323, 335–39 (2004); Markus Fallenböck, *On the Technical Protection of Copyright: The Digital Millennium Copyright Act, the European Community Copyright Directive and Their Anticircumvention Provisions*, INT’L J. COMM. L. & POL’Y, Winter 2002/2003, at 57–60, available at http://www.ijclp.org/7_2003/index.html; Kamiel J. Koelman, *A Hard Nut to Crack: The Protection of Technological Measures*, 22 EUR. INTELL. PROP. REV. 272, 278–80 (2000).

¹⁸⁵ A first step in that direction is the recent decision of Sony Online Entertainment to install a special auction site called “Station Exchange” that will allow *EverQuest* members to trade virtual goods. See Daniel Terdiman, *Sony Gets Real on Virtual Goods*, WIRED NEWS, Apr. 20, 2005, http://www.wired.com/news/games/0,2101,67280,00.html?tw=wn_story_page_prev2. As theoretically predicted, providers granting IP rights, like Linden Lab, are actively working on import and export functionality, because their content-creating users demand it.

¹⁸⁶ The situation resembles a prisoner’s dilemma: If one provider makes virtual property transferable, the other provider will want to capitalize on that move by denying its own users transferability. Both players thus have a dominant strategy of not granting transferability, which leads to an outcome that is likely to be worse for both than an outcome under cooperation. However, in practice the dynamics may become more complex and lead to different results if, for instance, the number of players increases or there is asymmetric information. See AVINASH DIXIT & SUSAN SKEATH, *GAMES OF STRATEGY* 90–92, 430–39 (2d ed. 2004).

¹⁸⁷ See Lazer, *supra* note 173, at 478–80, 485–87.

sense for virtual worlds to coordinate and harmonize the terms by which they grant their users the right to retain IP, in order to bring the regulatory side in line with the technical one. In practice, however, coordination will not be without substantial challenges, as fierce competitors in the marketplace have to come to the table and negotiate access to the inner workings of their businesses.

As user preferences pressure providers to coordinate, the resulting common standards will create positive spillover effects for those providers taking part in standardization. As we have mentioned, the universe of virtual worlds may be closer to Tiebout's ideal model,¹⁸⁸ but, due to persistent switching costs for users, may only approximate it.¹⁸⁹ The existence of spillover dynamics (such as that due to standardization) adds a powerful additional reason why one should not expect a stable equilibrium among virtual world providers. While it may sound counterintuitive, such coordination fueled by user preferences will likely further competition among virtual world providers.

It is likely that some coordination will eventually occur among virtual world providers, including direct regulatory coordination. However, the coordination processes are unlikely to be free of difficulties, temporary setbacks, and uneven outcomes, because although large providers have more negotiating power than smaller ones, smaller providers will benefit disproportionately from common standards and content transferability due to network effects.¹⁹⁰ The result may be a messy process, not unlike those witnessed in the areas of network interconnection and software antitrust.¹⁹¹

C. Transplantation

Even in the absence of formal coordination, flows of information from one competitor to another may lead to mutual learning and play a role in regulatory interdependence.¹⁹² An ensuing convergence towards "best prac-

¹⁸⁸ See Tiebout, *supra* note 167.

¹⁸⁹ See *supra* p. 1811.

¹⁹⁰ Due to network effects, smaller providers have more to gain from being "compatible" with larger providers.

¹⁹¹ See, e.g., Mark Cooper, *Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed, Proprietary Networks*, 71 U. COLO. L. REV. 1011, 1014–17, 1036–42 (2000) (arguing that "private negotiations will not produce meaningful open access" to the broadband Internet); David Gilo, *A Market-Based Approach to Telecom Interconnection*, 77 S. CAL. L. REV. 1, 15–19 (2003) (criticizing the high costs of regulating interconnection between long-distance carriers and local exchange carriers in the United States); Thomas M. Jorde et al., *Innovation, Investment, and Unbundling*, 17 YALE J. ON REG. 1, 8–21, 21–25 (2000) (examining the trade-off between innovation and mandatory unbundling with regard to incumbent and competitive local exchange carriers). For the Microsoft antitrust litigation, see, for example, *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59 (D.D.C. 2000), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir. 2001). For a survey of the antitrust cases involving Microsoft, see Amanda Cohen, *Surveying the Microsoft Antitrust Universe*, 19 BERKELEY TECH. L.J. 333 (2004).

¹⁹² See Lazer & Mayer-Schönberger, *supra* note 177, at 847–49; Lazer, *supra* note 173, at 480–82.

tices” through mutual learning could potentially shortcut a process that, if based only on competition, would take time and effort and be fraught with temporary setbacks. In the context of virtual worlds, the most intriguing information flows are created by users moving from one virtual world and its regulatory framework to another. Such immigrants do not simply add their human and other capital to the virtual world they join; they also bring along knowledge and expertise of the inner workings of the regulatory framework of another virtual world, including where it succeeds and fails.

Earlier, we noted that virtual worlds are regulated through two mechanisms: software and contracts, both of which are created and maintained by the virtual world provider.¹⁹³ When users move from one world to another, they transplant parts of both regulatory mechanisms, through their experience and through the architectures encoded into their information goods. This second point requires some explanation. Every information good that these users have created in the environment of their former virtual world reflects the constraints embedded into the overall software model of that world. Transplanting this content from one virtual world into another shapes the landscape of the software-encoded rules and constraints of the new host world in ways that are neither completely transparent nor expected by the user or recipient virtual world. Such imported content is viral, in that it may embed part of its DNA of constraints into the host’s space.

The implantation of encoded and hidden rules represents a means of regulatory transplantation that is distinct from the transfer of human expertise. This software-based rule transplantation is important because, as Lawrence Lessig has eloquently reminded us, code is a less transparent means of regulation; it is thus rarely subjected to the same level of societal scrutiny as conventional governance suggestions made by a recent immigrant to a virtual world.¹⁹⁴ Consequently, through immigration and importation of information goods, a virtual world may change in unexpected ways. These flows of regulatory constraints embedded in code and transplanted from one virtual world into another provide a third, thought-provoking mechanism of regulatory interdependence to virtual worlds.¹⁹⁵

V. VIRTUAL WORLDS AND REAL-WORLD GOVERNANCE

Over the course of this Article, we have examined the challenges of governance in virtual worlds. The original picture of governance being shaped by the virtual world provider and its relationship to its customers has evolved. Pointing to permeability, we highlighted the potential for spillover effects to emerge between a virtual world and the real world and the consequent need for governance structures in the virtual world to react

¹⁹³ See *supra* text accompanying notes 81–84.

¹⁹⁴ See LESSIG, *supra* note 12, at 95–98, 224–25.

¹⁹⁵ See Viktor Mayer-Schönberger, *Into the Heart of the State: Intervention Through Constitution-Making*, 8 TEMP. INT’L & COMP. L.J. 315, 317 (1994).

to activities in the real world and vice versa. One such spillover—adhering to real-world IP rights in virtual worlds—introduced a “constitutional” dimension, which constrains how virtual worlds may regulate. This constitutional dimension does not occur through a simple subjugation of virtual worlds to real worlds (and “real” regulatory frameworks), but instead leads one to see regulation in terms of market forces and the mobility of virtual worlds’ customers. This finding in turn led us to broaden the picture once more, portraying the regulation of virtual worlds in the context of regulatory interdependence among virtual worlds.

This is the complex world that real-world regulators find themselves in: Virtual worlds set rules enforced through software and contract. Virtual world activity may spill over into the real world, and vice versa. Virtual world regulators are driven by commercial instincts shaping their regulatory frameworks through cross-jurisdictional interdependence. Given these parameters, how can real-world lawmakers regulate virtual worlds, if at all? We offer a number of options, each of differing value.

We begin with two words of caution. First, although these options cover what we perceive to be the main alternatives available to real-world regulators, they are not exhaustive—other options may exist. Second, and perhaps more importantly, these options offer distinct alternative courses of action to real-world lawmakers who are contemplating regulation of virtual worlds. We do not address the normative question of *whether* real-world regulators should regulate virtual worlds—at least not directly—because answering this normative question is in principle a political decision, not a legal one. That said, through our analysis of each option’s possible consequences and its likelihood for being both effective and successful (or its being doomed to failure), we do suggest that some options may be better suited for certain specific normative goals than for others. In this indirect sense, our analysis seeks to inform lawmakers’ response to what should be done to regulate virtual worlds, not to advocate one policy position over another.

A. *Regulating Virtual World Providers*

Virtual world providers are the most obvious targets of real-world government regulation. Because they maintain the virtual world’s infrastructure, they control the central bottleneck of virtual-community interaction. Through their code and contracts, they possess the physical and legal abilities (respectively) to enforce rules in the virtual world. Because they are in control, as Lichtman and Posner have argued in the comparable context of ISPs, they could be held liable by real-world regulators.¹⁹⁶ It does not matter whether virtual world providers own the content of their virtual worlds. The onus to enforce is linked to their ability to control, and they obviously

¹⁹⁶ See Douglas Gary Lichtman & Eric A. Posner, *Holding Internet Service Providers Accountable* 41–42 (Chicago Working Paper Series, John M. Olin Working Paper No. 217, 2004).

possess that control. In this important way, virtual world providers are like Napster.¹⁹⁷

By the same token, real-world lawmakers may wish to think twice before regulating virtual world providers. The more liability imposed on providers for enforcing real-world rules in their virtual worlds, the less these providers may be able to delegate virtual world rulemaking to their participants. In turn, this inability to delegate reduces the attractiveness of such virtual worlds. Users may decide to switch to a virtual world with a more libertarian or democratic governance structure—one in which real-world laws are either not being strictly enforced, or one in which they have a voice in determining what real-world laws shall apply in their virtual world. The desire to switch will be particularly strong if users are residing in a different real-world jurisdiction from their virtual world provider. In such cases they would be subjected to rules from a different real-world jurisdiction in their virtual world—a real-world jurisdiction to which they may not have a connection and in which they do not have a voice.

At the same time, virtual world providers who operate from more lenient real-world jurisdictions would become more attractive to users compared with providers domiciled in restrictive real-world environments. In a typical case of regulatory arbitrage, this may prompt users to join virtual worlds that are situated in jurisdictions that are more hospitable not just to virtual worlds in general, but to private ordering¹⁹⁸ and self-governance of virtual worlds in particular.

As the market winds itself through this competitive spiral, the dynamic may play out on two interconnected levels. First, virtual world providers may compete for customers by actively marketing the type of regulatory framework that they offer, pitting virtual world providers who operate from less restrictive real-world states against those virtual world providers who are operating from more restrictive real-world jurisdictions. Second, a form of regulatory competition may emerge among real-world lawmakers: insofar as virtual world providers create a positive revenue stream for the real-world jurisdiction in which they are domiciled, real-world lawmakers may

¹⁹⁷ Napster operated a centralized database, indexing all files on the network. See *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004 (9th Cir. 2001). Its liability for contributory and vicarious copyright infringement was affirmed by the Ninth Circuit in 2001. See *id.* The court held that Napster's actual knowledge of the infringing activities, and its material contribution to infringement by its ongoing provision of the site, provided a basis for contributory liability. See *id.* at 1021–22. For further analysis, see Robin D. Gross, EFF Staff Attorney for Intellectual Property, 9th Circuit Napster Ruling Requires P2P Developers Ensure No One Misuses Their Systems: Supreme Court's "Betamax" Defense to Secondary Liability Narrowed (Feb. 26, 2001), http://www.eff.org/IP/P2P/Napster/20010226_rgross_nap_essay.html.

¹⁹⁸ Cf. ELLICKSON, *supra* note 91, at 123–36.

become hesitant to institute regulations that damage a domestic economic engine.¹⁹⁹

Although providers in the less restrictive real-world jurisdictions do not necessarily have to offer a more permissive regulatory framework to their users, a less restrictive jurisdiction offers its providers more flexibility to make economic and strategic choices about what they think is the most appropriate regulatory framework for their virtual worlds. In other words, it enables providers to optimize their competitive difference. Conversely, providers in more restrictive jurisdictions will have to incorporate any imposed real-world restrictions into the regulatory framework of the virtual worlds that they bring to the market. Although they may still attract and retain customers, they will have to balance this loss of regulatory flexibility by offering their users other benefits or services.

It is too early to predict the vector of this regulatory dynamic: whether users will converge on those virtual world providers who offer a regulatory framework that balances particularly well the desires for individual freedom and for societal rule enforcement, or whether providers will serve different markets in a Tiebout equilibrium. It is, however, more likely that providers from more restrictive real-world regulatory frameworks (who have less freedom in crafting the regulatory frameworks for their virtual worlds) will be less able to strike the regulatory balance that attracts and retains users than those providers who operate in less restrictive jurisdictions.

Taken in combination, we cautiously suggest that these two dynamics—the competition of virtual providers over users through the active marketing of their regulatory frameworks and the competition between lawmakers over attracting revenue-generating corporations to their jurisdictions—may diminish the ability of real-world lawmakers to efficiently regulate virtual worlds.

B. Constraining Regulatory Dynamics

Alternatively, real-world regulators may attempt to limit these regulatory dynamics through real-world inter-jurisdictional coordination. Three distinct regulatory options are available to them: generally harmonizing laws regulating virtual worlds across jurisdictions, constraining users' ability to switch providers, or prohibiting users from switching to providers domiciled outside their real-world jurisdiction.

By finding common regulatory ground, real-world lawmakers could limit the ability of virtual world users to switch to virtual world providers who operate outside the reach of real-world regulators. As has been argued elsewhere, such coordination does not need to be comprehensive and cover-

¹⁹⁹ See, e.g., Catherine Gage O'Grady, *Targeting State Protectionism Instead of Interstate Discrimination Under the Dormant Commerce Clause*, 34 SAN DIEGO L. REV. 571, 575 (1997) (arguing that "the primary concern in evaluating local regulations ought to be the long-recognized prohibition against resident economic protectionism").

age does not have to be complete in order to reduce competitive dynamics.²⁰⁰ Virtual world providers who are already required to follow their jurisdiction's real-world rules, especially those from restrictive real-world jurisdictions, would welcome real-world regulatory coordination, in as much as this coordination is leveling the playing field. However, given wide variances in societal values and differing ideologies, achieving effective coordination may prove difficult.

If such inter-jurisdictional coordination is hard to achieve, real-world lawmakers have another alternative: they could opt to constrain competition among virtual world providers by making it difficult for users to switch providers. After all, if users cannot switch providers (or can do so only with great difficulty), virtual world providers would face less competitive pressure to retain users, which is the main fuel of regulatory competition among virtual worlds. Such a restrictive measure, however, may be difficult to support and technically difficult to implement. What elected real-world lawmaker would want to be perceived as being against choice, even if only in virtual space?

Real-world regulators may choose a third and more palatable strategy to constrain regulatory arbitrage: they may restrict users from choosing virtual world providers who operate outside the real-world jurisdictions in which those users live. Users could still choose among providers within their jurisdiction. This tactic could successfully limit regulatory competition around attracting new users and level the playing field for virtual world providers by interdicting users from joining virtual worlds outside of their real-world jurisdictions. Although competition among virtual world providers would continue, direct competitors would all reside in the same jurisdiction and be bound to enforce the same real-world rules in each of their virtual worlds. In this way, the global market of virtual worlds would be broken into national markets along jurisdictional (and thus real-world regulatory) borders.

All these options suffer from one potentially fatal flaw: they posit that virtual world providers are discrete entities with unified control over their infrastructures and, as such, are capable of maintaining a bottleneck of control over their users. In essence, these options all assume that reining in virtual world corporations will be a task akin to reining in the Napster file-sharing network, with regulators able to go after a corporation that provides the central file-sharing directory on a central server. However, because virtual world providers do not themselves provide content if they follow the *Second Life* model, but rather (like a peer-to-peer file-sharing client) only provide the mechanism of sharing, there is—at least in principle—no reason why virtual worlds need to reside in one particular physical place, such as a server farm that is controlled and operated by a real-world commercial organization, like Sony or Linden Lab.

²⁰⁰ See Lazer, *supra* note 173, at 484–87.

It is perfectly possible to envision a virtual world that exists on a decentralized peer-to-peer (P2P) infrastructure, much like current P2P file sharing technology. To be sure, this architecture would call for technical capabilities that are not yet fully in place—such as bandwidth for the significant data traffic between peers, local storage space on peer computers, and (perhaps) even more computing power.²⁰¹ However, Moore's law²⁰² and related improvements to the availability and affordability of computing power, storage, and bandwidth may create such capabilities in the near future. Creating the software engine for a P2P-based virtual world certainly requires significant effort, but numerous (and sophisticated) peer-to-peer software products provide evidence that this task is surmountable, if—and this is the decisive condition—there is sufficient demand for such software.²⁰³ Taking the Linux kernel as an example, the market displayed just such demand when given the opportunity to use a POSIX-compliant operating system that would run on Intel architecture.²⁰⁴ Over only eight years, thousands of professional developers and software corporations contributed mostly donated time to transform Linus Torvald's project into a platform that became a formidable competitor to Microsoft's server software and Unix vendors' hardware-specific operating systems.²⁰⁵ What would happen if virtual worlds received similar support from developers and a set of corporations poised to gain from the expansion of real-world software markets into P2P virtual worlds? Such projects are not hypothetical: a community-built project called Solipsis is getting very close to releasing a 1.0 production version of a 3D virtual world.²⁰⁶

Imposing any regulation on virtual world providers that alienates the users of that virtual world could turn into the catalyst for the advent of a completely dispersed, decentralized, and *global* virtual world system, which

²⁰¹ See John Borland, *A Virtual World with Peer-to-Peer Style*, CNET NEWS.COM, May 9, 2005, http://news.com.com/A+virtual+world+with+peer-to-peer+style/2100-1025_3-5698499.html?tag=nefd.lede.

²⁰² Moore's Law refers to a rule of thumb that processing power of computer chips doubles approximately every 18 months. See Intel, Moore's Law 40th Anniversary, <http://www.intel.com/technology/mooreslaw/index.htm> (last visited Mar. 27, 2006). For the original prediction by Gordon Moore, see Gordon E. Moore, *Moore's Law*, in VISIONS OF TECHNOLOGY 243–44 (Richard Rhodes ed., 1999).

²⁰³ For examples of production open source P2P, see Sourceforge.net's search results on the term "P2P," at http://sourceforge.net/search/?words=p2p&type_of_search=soft (last visited March 27, 2006).

²⁰⁴ For more information on Linus Torvalds and the Open Source movement, see LINUS TORVALDS & DAVID DIAMOND, *JUST FOR FUN: THE STORY OF AN ACCIDENTAL REVOLUTIONARY* (2001); see also David Diamond, *The Peacemaker*, WIRED, July 2003, at 133, available at <http://www.wired.com/wired/archive/11.07/40torvalds.html>; Steve Hamm, *Linus Torvalds' Benevolent Dictatorship*, BUS. WK. ONLINE, Aug. 18, 2004, http://www.businessweek.com/print/technology/content/aug2004/tc20040818_1593.htm?chan=tc&.

²⁰⁵ See TORVALDS & DIAMOND, *supra* note 204, at 121, 157; ILKKA TUOMI, NETWORKS OF INNOVATION 162–68, 169–73 (2002).

²⁰⁶ See Solipsis, <http://solipsis.netofpeers.net/> (last visited Sept. 14, 2005).

would be—as the P2P phenomenon so starkly demonstrates—very difficult to throttle without fundamentally modifying the Internet’s architecture.²⁰⁷ If real-world regulators push too hard, one potential outcome could be that we may witness “Napster’s Second Life,” the transformation of virtual worlds onto a highly decentralized P2P infrastructure that is hosted on individual users’ computers. The necessary software may be developed and marketed by former virtual world providers, or through a global grass-roots open source development process that would be even less subject to governmental control. Either way, P2P-based virtual worlds could eventually transmogrify into an unregulable space that is both everywhere and nowhere, realizing at long last John Perry Barlow’s, David Post’s and David Johnson’s early visions.²⁰⁸ So what, then, can real-world regulators do?

C. *Defensive Posture—Restricting Permeability*

If real-world lawmakers conclude that the regulation of virtual worlds may potentially fuel regulatory arbitrage and may thus undermine their real-world regulatory authority, and if they view this type of regulation as doing more harm than good, then lawmakers may want to focus their regulatory zeal not on subjugating virtual worlds, but on isolating them. If the permeability between virtual worlds and real worlds is lowered, regulators may hope that spillover effects can be contained. For example, real-world regulators may prohibit the real-world sale of information objects from virtual worlds, thereby reinforcing a division between the two worlds. Such a strategy of embracing the “separateness” of real and virtual worlds could carefully craft a regulatory framework that limits virtual world externalities from spreading into the real world. On the other hand, it would be a stark about-face for real-world regulators, who have successfully battled this “separateness” since its inception.²⁰⁹ It also remains to be seen to what extent such a separation is feasible.

Moreover, if real-world governance abandons virtual worlds by insisting on separation, it would not diminish or otherwise change the desire of virtual world users to have the virtual world governance they prefer. If these users have no recourse to a real-world legal framework, they may desire to build their own suitable virtual governance sooner rather than later. Put differently, a strategy of separation may exacerbate and accelerate the development of robust virtual world governance structures. Although this

²⁰⁷ This, of course, suggests another option for lawmakers desiring to maintain control—namely, to regulate the transitioning of the Internet towards a more controllable, less end-to-end infrastructure.

²⁰⁸ See *supra* notes 1–9 and accompanying text.

²⁰⁹ For example, to counter the open “information wants to be free” culture of a Barlow-esque cyberspace, U.S. lawmakers have instituted the DMCA, among other copyright protection mechanisms. See discussion *supra* note 184. The DMCA applies to a copyrighted virtual object as much as to a song or software application. See Second Life, DMCA: Digital Millennium Copyright Act, <http://secondlife.com/corporate/dmca.php> (last visited Mar. 27, 2006).

result may not be a bad thing in general, this strategy of separation undercuts the ability of real-world governance structures to engage in shaping the evolution of virtual world governance. In this way, real-world governance loses influence.

D. Real-World Assisted Virtual World Self-Governance

An alternative option may be the rather pragmatic realization on the part of real-world regulators that robust governance must derive from those that are governed, not from an outside (real-world) regulatory body. According to this option, the best that one could wish for virtual worlds is that they are able to bring about their own governance structures and encourage the development of systems that are participatory and fair. Should real-world regulators follow this path, they may find themselves in the uneasy but promising role of midwives for the birth of self-governance in virtual worlds, inculcating the values that they hold dear from real-world governance systems into these nascent attempts at self-governance. This may ensure that democracy's enduring values are encoded in the DNA of each virtual world's governance, thereby facilitating a pragmatic compromise of policy and regulatory challenges faced by virtual worlds, including those caused by permeability with the real world.²¹⁰

This midwife strategy has the advantage that it does not depend on the existence of specific bottlenecks of control. If the *demos* agrees to institute a set of rules, the virtual world could be run on a distributed peer-to-peer infrastructure as well as a more centralized architecture. Platform-independence is the eminent advantage of self-governance: it does not require an external enforcement structure (in the form of a provider that has control of information bottlenecks).

One may look at this option for real-world regulators and find it to be a poor-man's version of other alternatives, reducing the role of real-world regulators to providing advice and guidance. To be sure, much of the success or failure of the initiative will depend on the ability of real-world regulators to advise ably and guide well. But helping a fledging *demos* to develop its very own governance system is more than just window dressing. Ensuring that the appropriate values are embedded in the governance system of a virtual world is nothing short of injecting one's expertise into a people's *constitution*. As one of us has examined in the context of real constitutional endeavors, such value implantation can outlast any other form of regulatory intervention and, if done correctly, is vastly superior to other options.²¹¹ This strategy may therefore not simply be pragmatic, but also congruent with the brave new world that virtual worlds are establishing.

²¹⁰ See Mayer-Schönberger, *supra* note 195, at 326–28.

²¹¹ See *id.* at 333–34.

CONCLUSION

In this article we examined the phenomenon of virtual worlds and how our real world's legal system will interact with these worlds. We started by describing virtual worlds, examining their astonishing growth and size, and looked at the in-world governance challenges virtual worlds face, including spillover from the virtual economies to the real world. We examined the economics of virtual world providers and the importance of intellectual-property ownership in virtual worlds. We applied the theory of cross-jurisdictional interdependence to virtual worlds through the modes of competition, coordination and transplantation. We suggested that, as economic pressures make it difficult for virtual world providers to resist granting IP rights to users, virtual world providers may find themselves in competition with each other, based not in small part on the regulatory framework they can offer their users. Ultimately, we predicted that these cross-jurisdictional dynamics among virtual worlds could restrict the ability of real-world lawmakers to exert control over virtual worlds. Too much real-world legal control, we suggested, could lead to virtual worlds moving to a peer-to-peer distributed network, in which—as P2P file-sharing has amply demonstrated—territorially bounded and democratically legitimized real-world law would lose most, if not all, of its power. To avoid such an outcome, we provided an alternative to real-world lawmakers: encourage virtual worlds to develop forms of self governance based on participatory lawmaking and fair law enforcement mechanisms.